

GREEN TALENTS

International Forum for High Potentials
in Sustainable Development

Alumni
2009
2019



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GREEN TALENTS



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Anja Karliczek
Federal Minister of
Education and Research

Greeting

The issue of climate change is a challenge for all humanity. Climate research, resource efficiency and earth systems research are more relevant now than ever before. The Green Talents from all over the world show us what sustainability can look like – working together across disciplines and national borders. After all, climate change doesn't stop at borders either. At the same time, digitalisation offers us new opportunities to process large volumes of data faster and to understand this data correctly. In this context, it is only logical that the young scientists and researchers sought solutions for the Smart Green Planet this year.

We launched the Green Talents Competition ten years ago. Since then, 257 talented young researchers from 69 countries have come to Germany to study sustainability. Some have then extended their stay by a further three months at a German research institution of their choice. Several of the Green Talents have even ventured to take the next steps in their career in Germany and are now conducting research at universities, non-university research establishments or within a company.

The Green Talents network is bursting with life. We have, thus, achieved one of our primary objectives – to create a lasting connection between our international award winners. They come from all over the world.

After returning from Germany, they serve as ambassadors for environmental protection and sustainability in their home countries.

As patron of this competition, I am particularly delighted to see the second generation of Green Talents emerging – young scientists who have been mentored by alumni from the programme and who have now become successful participants themselves. From the very beginning, the competition has enjoyed relations with strong partners from science, society and policy-making. I would like to express my sincere thanks to all of these partners who have made these many success stories possible.

The next generation of scientists and researchers is inquisitive, creative and delivers exceptional work. It is wonderful to see the great willingness shown by all involved to work together for our future. We all share one goal – we want to ensure a good life for everyone and protect and preserve the planet for our children.

Anja Karliczek
Member of the German Bundestag
Federal Minister of Education and
Research

257 Green Talents from
69 countries



Methodology of the 2019 Green Talents survey

Target of evaluation: the Green Talents Competition

The Federal Government considers global warming, increasing scarcity of energy and resources, and large-scale environmental pollution to be among the greatest challenges of our time. The Federal Ministry of Education and Research (BMBF) is looking to international cooperation to tackle these issues. This approach is supported by the annual Green Talents Competition, which promotes cultural diversity and creativity in the development of global solutions. Networking among the most promising young scientific talents as well as access to Germany's centres of research and innovation are a key feature of this.

Every year since 2009, a jury composed of high-ranking German experts has selected the Green Talents awardees from a large pool of applicants, on the basis of their scientific excellence and innovation potential. The programme covers a broad range of research areas and invites the winners to participate in the Science Forum. This two-week trip through Germany includes visits to cutting-edge research institutes, gives insight into the German sustainability landscape, and lays the foundation for international research cooperation in the future. Access to the German scientific community is further strengthened by the opportunity for one-on-one exchanges with leading

experts chosen by the awardees. Swapping ideas on sustainability science as well as exploring possibilities for cooperation are central to these discussions.

A further part of the award is the opportunity to complete a fully-funded research stay of up to three months at a German institution of the awardee's choice in the year following the Science Forum. During their stay, the Green Talents will gain insight into sustainability research and application in Germany. Furthermore, existing networks can be strengthened and expanded. Both the Science Forum and the research stays are funded by the BMBF.

“More than a competition, the Green Talents programme helped me discover my passion for sustainability research and gave access to an amazing professional network that I will cherish for years to come.”

Green Talent 2018

What were the underlying research questions of the survey?

The Green Talents survey focused on the following questions:

- In which positions, institutions and regions are the Green Talents alumni currently employed?
- How significant is the influence that the competition had or still has on the academic or professional careers of the Green Talents alumni?
- Did the Green Talents Competition create lasting relationships between alumni and German partners?

“It is always helpful when someone from outside comes to our institute with a clear idea and then, in contact with different team members, supports the development of their own project as well as our thinking.”

Expert



Which instruments were used for the survey?

The survey was conducted online between May and June 2019 over a period of eight weeks. The questionnaire for the alumni was in English and questionnaires for experts, supervisors and jury members were in German. The survey consisted of both open- and closed-ended questions, which were customised for the specific target groups.

Experts who also acted as supervisors for Green Talents during their research stay at their organisations were not asked to participate twice but approached only in their role as supervisors.

Who was selected for the survey and who took part?

Overall, 227 Green Talents alumni, 168 experts from individual meetings, 53 research stay supervisors, and nine former members of the jury were invited to participate in the survey. The questionnaire was answered by 88 alumni, 25 experts, 18 supervisors, and four jury members, which equates to response rates of 38% (alumni), 15% (experts), 34% (supervisors), and 44% (jury members).

Results of the survey

- According to the alumni, expansion of their personal network, a heightened international reputation and recognition of their research, and improved job opportunities are among the main benefits of the Green Talents Competition.
- About two thirds of the alumni received further scholarships or awards since their participation in the Green Talents Competition.

GREEN TALENTS

inside

99%

of the alumni would recommend the Green Talents programme.

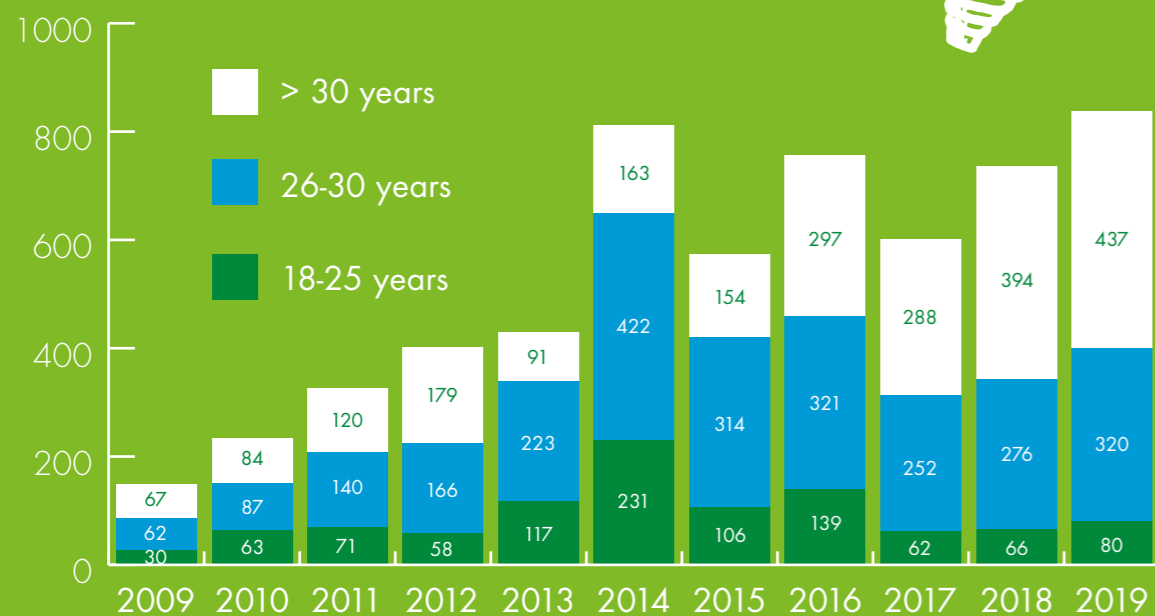


More than 90% of the respondents indicated that their expectations regarding the possibility to network with other scientists through the Green Talents programme have been met.

“Motivated talents are given great opportunities to network and become internationally active – a chance that many young scientists would otherwise not get. The programme also offers recognition and motivation.” Supervisor

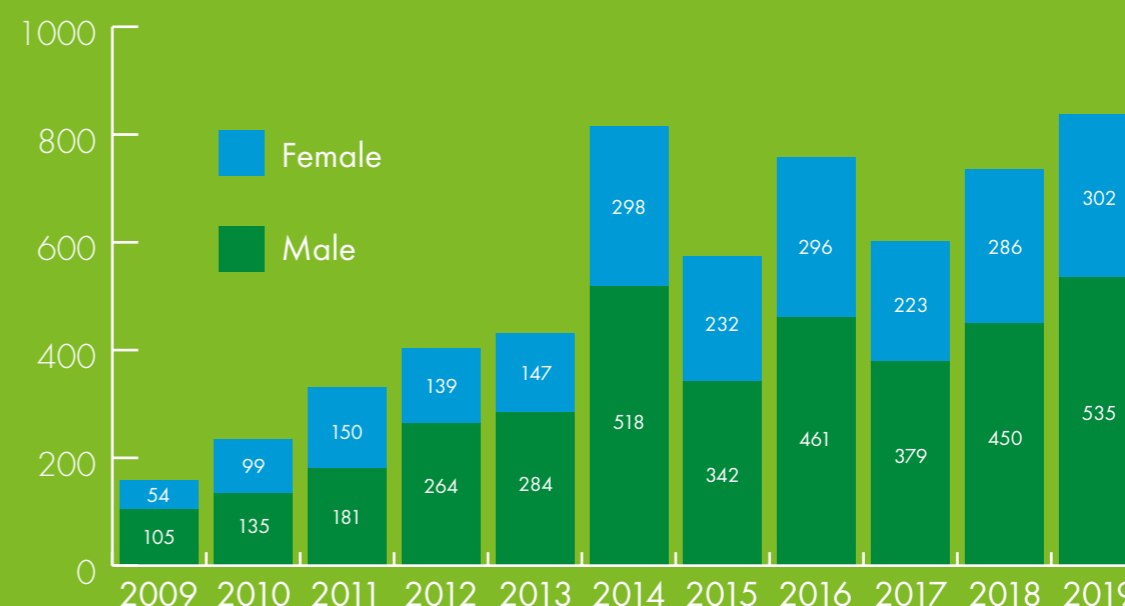


Age of applicants 2009–2019



According to 92% of the respondents, winning the Green Talents award has influenced their professional careers in a positive way.

Gender of applicants 2009–2019



“Beside the recognition of the award itself, this was a great immersive experience with like-minded and talented peers. It has left a noticeable personal and professional ‘green’ footprint in my life.” Green Talent 2009

GREEN TALENTS

inside

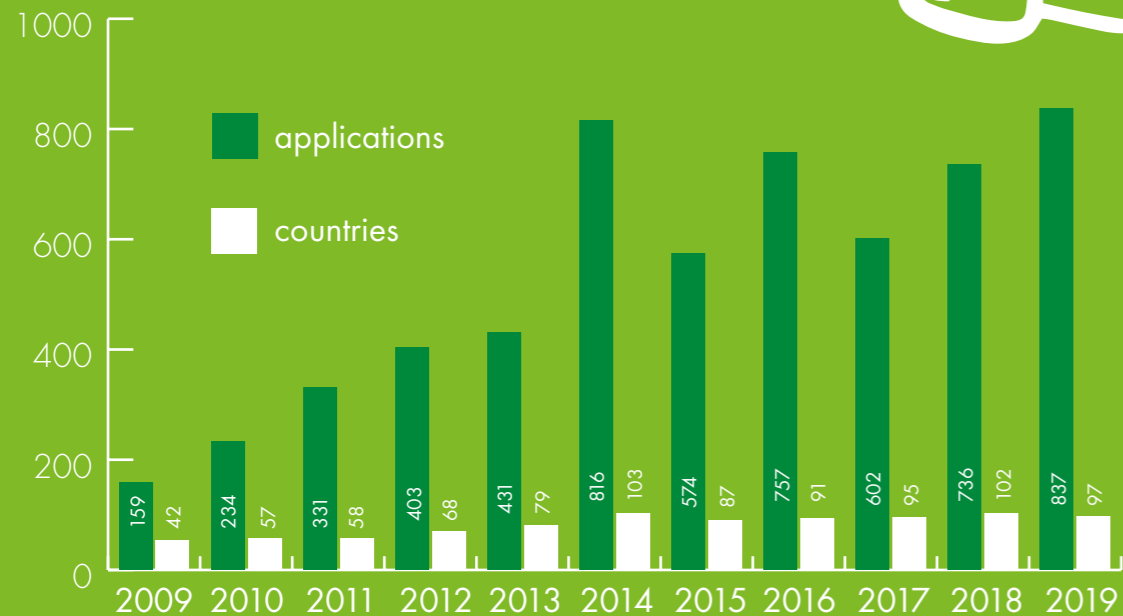
177
research stays



89% of the supervisors said that their organisation has benefitted from the Green Talents research stay.



Number of applicants and countries 2009-2019



"I'd say that one of the most pleasant things I've experienced in regard to Green Talents was to meet scientists from different nationalities and cultural backgrounds interacting with each other in total harmony and with a common goal, which is building a sustainable future. This scenario was positively different to what global media normally spread."

Green Talent 2016



98% of all alumni interviewed are still in touch with the Green Talents network



96%

of the experts contacted stated that they would be available for another meeting with the Green Talents alumni.



54
institutions visited

GREEN TALENTS



Professor Christa Liedtke
Director Division Sustainable
Production and Consumption at
Wuppertal Institute and Green
Talents Jury Member 2019

Interview with Professor Christa Liedtke

How would you summarise the opportunities that the Green Talents Competition provides for young international researchers?

The Green Talents Competition offers these young scientists an ideal platform to present and discuss courageous and sustainable research questions and concepts, thereby making a valuable contribution to science, civil society and politics. However, science also means critically questioning oneself and one's approach – this is supported by the intensive exchange between the participants and research institutes. Science thrives on discussion and constructive debate to find the best solutions.

In addition, intercultural and interdisciplinary exchange promotes the networking of international junior researchers and thus makes a decisive contribution to further cooperation and projects. In the sense of SDG 17, it is precisely such cooperation that can develop the foundation of a peaceful world if they make SDG 1-16 the basis of cooperation.

In which way does the German research landscape benefit from this programme?

In particular, the interdisciplinary and intercultural exchange helps to understand and discuss sustainability issues of our time across national borders. Germany, anchored in Europe, is thus broadening its perspective on global social, economic and ecological situations, and their link with its own actions in science, business and society.

What strikes you as the most remarkable characteristic about Green Talents? What is unique?

The applications of the young researchers show a broad spectrum of research disciplines – from spatial planning, governance research, sociological and cultural studies to

economic as well as natural sciences and engineering – from application-oriented to basic research. The international sustainability and climate research is diverse and technically well positioned to meet the global challenges. All regions of the world are represented and the gender situation is almost balanced. The result is an exceptional, globally composed group of young people with excellent education and a high level of commitment to sustainability, whose connection with one another through this programme will be singular and formative for their lives. What a unique opportunity!

In what way does Green Talents contribute to better international research cooperation?

Bringing together talented and innovative young scientists from different countries and cultures helps to take a globally differentiated approach to sustainability issues.

In this way, country- and culture-specific differentiated measures can be derived that can bring about global thought-provoking impulses and changes through the networking of the international participants in the Green Talents Competition. At the same time, they encourage the emergence of international collaborative projects and cooperation.

Green Talents means to me...

...young researchers with heart and mind, critical and courageous, curious and committed, who face the global challenges with openness and global tolerance in appreciation of cultural and ecological diversity and actively and critically advance the achievement and further development of the SDG globally as scientists. Green Talents are the Green Scientists and Professionals of today and tomorrow.

Prof. Christa Liedtke graduated from University of Bonn with a PhD (Dr rer. nat.) in Biology in the research field of Cytology. Following a position as head of the working group "Monoclonal Antibodies" at the Chair of Cytology, University of Bonn, she started her career at Wuppertal Institute for Climate, Environment and Energy in 1993. Since 2003, she has been heading the research group "Sustainable Production and Consumption" at Wuppertal Institute and became Director of the "Sustainable Production and Consumption" division in 2018. She recently was appointed member of the Advisory Council for Consumer Affairs (SVRV).



Green Talents Networking Conference 2019

Impressions



“For me as an experienced research manager and team leader, collaborating with young creative minds was refreshing and invigorating and led to conceiving new ideas and research approaches. I was particularly impressed by the high motivational potential of the participant. Our joint publication was a great success with a lot of positive international feedback; we are still in contact and long-term research collaborations could be established – all in all a consistently 5-star experience.”

Supervisor





“Green Talents was the turning point in my career in international research. It opened the door to international collaborations in Germany and beyond, and I entered a network that would expose me to countless research and learning opportunities related to sustainability and disaster risk reduction. I have made the most wonderful contacts and friendships through this programme and I fondly remember my 3-months research stay in Germany back in 2012 – even seven years later.” Green Talent 2011

GREEN TALENTS

2019

Applications total 837
 Application countries 97
 Winners 25



2019



Manar ABDALRAZEQ
 Palestinian Territories
 PhD Student in Biotechnology
 University of Naples Federico II, Italy

Manar's research focuses on developing and producing sustainable bioplastics as alternative to petroleum-based plastics. Her aim is to exploit different bio-polymers coming from agro-food wastes. Petroleum-based plastic, widely used in the food sector, causes serious environmental pollution, and only a small part of it is being recycled. Burning plastic releases poisonous chemicals, and large amounts end up in landfills or in the oceans. In particular, Manar is working on the development of biodegradable and edible bioplastics, obtained from plant or animal feedstock.

She developed a method to produce these novel materials by utilising the proteins from milk whey, which is accumulated as waste in large quantities by the dairy industry during the production of cheese and curd.

Manar recently got a scholarship to work on "Nano-reinforced edible films to be used in food packaging" within a cooperation between the Italian Ministry of Foreign Affairs and the United States of Mexico.

Research focus: development of bioplastics, reduction of waste

Kathryn ARNOLD
 South Africa

Master's Student in Engineering Geomatics
 Council for Scientific and Industrial Research (CSIR) and University of Cape Town, South Africa

Kathryn has a background in Geographical Information Sciences with a specific application in the context of urban and regional planning. The overarching focus of her research is on decision and planning support as it relates to city and regional development futures, through advanced spatial analysis and modelling. She also has a keen interest in risk and vulnerability research in the climate change and adaptation space.

She hopes her work will provide a sound evidence base for local planning and decision-making that is inclusive and sustainable.

- 2019 Young Researchers Establishment Fund Award, CSIR, South Africa
- 2016 Baden-Wuerttemberg Scholarship, Baden-Wuerttemberg-Stiftung, Germany
- 2016 Esri Young Scholar Award, South Africa

2019



Research focus: geoinformatics and advanced geospatial analysis for urban and regional planning support

2019



Luísa CORTAT SIMONETTI GONÇALVES

Brazil

PhD Student in Law at Vitória College of Law, Brazil and Maastricht University, the Netherlands

Current Position: Guest Researcher at the Max Planck Institute Luxembourg for International, European and Regulatory Procedural Law, Luxembourg

Luísa's research focuses on both public international legal regulation and private pathways to find a solution for the huge and ever increasing global problem of plastic pollution of the oceans. Research is necessary in several fields to find joint solutions. Luísa started by looking at this complex issue from the perspective of the legal field. Her research aims at finding ways to incentivise a more sustainable behaviour and effectively face the problem.

Luísa's analysis of eleven existing instruments and protocols shows that none is specifically addressing the problem. But it points to several essential aspects to be considered when designing a sustainable solution to face the plastic pollution in international waters. Furthermore, she is looking at private initiatives (e.g., from NGOs and companies under the aspect of corporate social responsibility) dealing with plastic pollution. She aims at deriving principles for an appropriate policy mix, an optimal theoretical structure for environmental solutions and the interactions between government, civil society, and corporations concerning effective environmental regulation in the international context.

Research focus: international environmental law, legislative, private, and corporate initiatives to reduce plastic pollution in the oceans, fundamental rights and duties (human rights)

2019



Dr Sheikh Adil EDRISI

India

PhD in Environmental Science and Sustainable Development

Current position: Senior Researcher at Banaras Hindu University, India

Marginal land is not used since it does not deliver enough yields to justify the adopted efforts. Degraded land has lost its ability to grow food due to inappropriate and unsustainable land use. Vast areas have been degraded across the world.

Adil's research focuses on utilising geospatial modelling to classify, explore, and use of marginal and degraded lands. He is exploring possibilities to use these sites for biomass and bioenergy production, and to regain its various ecosystem services at the same time.

He has screened various multipurpose perennial plant species for this purpose. He suggests the utilisation of indigenous, fast-growing, climate-adaptive plant species for the restoration. He has also proposed management strategies for invasive plant species for halting the biodiversity loss in ecosystems. Adil has also monitored the restoration processes in the different types of degraded sites by developing the soil quality indicators for the ecological profiling of degraded lands.

Research focus: land management, bioenergy, and ecosystem services

Debanjan DAS

India

PhD Student in Chemistry

Current position: Research Associate at the Indian Institute of Science, India

Debanjan is a chemist with expertise in material science, who is searching for new ways of economically storing solar energy by looking for new electro-catalysts for water splitting. Solar power is the most plentiful energy source available to mankind. An attractive method to store this energy is to split water into hydrogen and oxygen. The success of this technology depends on the development of an economic solution to catalyse this reaction. Debanjan is searching for new transition metal-based electrocatalysts which are cost-effective, highly active, and consisting of raw materials that are not rare.

Another idea Debanjan is pursuing is to make the process economically more attractive by replacing the oxygen evolution reaction at the anode with the oxidation of

primary amines. This results in the production of hydrogen and nitriles which makes the entire process more attractive, because nitriles can be sold at a higher price than oxygen.

- 2018 Bristol-Myers Squibb graduate research fellowship
- 2017 Raman-Charpak Fellowship

2019



Research focus: material science, water splitting, hydrogen production, and electro-catalysts

Dr Jean EL ACHKAR

Lebanon

PhD in Biochemistry and PhD in Chemical and Process Engineering

Current position: Researcher and Lecturer at Saint Joseph University of Beirut, Lebanon

Jean is an experienced scientist who extensively researched the production of bioenergy by anaerobic digestion. Bioenergy is a promising way to reduce the use of fossil resources on one hand and to make good use of organic waste and by-products on the other. Biogas produced through anaerobic digestion is a versatile energy source since it can be used to produce heat, electricity combined with heat or biofuel.

Jean focused on researching the usage of anaerobic digestion to valorise organic by-products, on understanding the biochemical parameters affecting the bioenergy production as well as on intensifying the process using several mechanical, chemical, and physical pretreatments. He closely studied the use of grape pomace from wine production and olive pomace

from oil production in his home country Lebanon. He developed and realised a prototype bioreactor and worked on the optimisation of the inward processes. In further studies, Jean aimed at valorising local microalgae and lipid-extracted residues as well as whey cheese from dairy industries and coffee grounds for bioenergy production.

2019



Research focus: anaerobic digestion, green energy, and waste management

2019



Karima EL AZHARY

Morocco

PhD Student in Energy Efficiency

Mohamadia School of Engineers, Material, Energy and Acoustic Team, Mohammed V University of Rabat, Morocco

Karima directed her university studies and professional activities towards developing new sustainable construction and insulation materials, based on alimentary and agricultural waste. These materials should improve thermal insulation and energy efficiency of buildings predominantly in underprivileged areas. Buildings offer the greatest potential for achieving significant greenhouse gas emission reductions at least cost.

Karima is working on improving the energy efficiency of buildings envelope, while providing the necessary thermal comfort without using any heating and air conditioning systems. She is developing new ecological, sustainable construction and insulation materials based on local waste. Karima's idea is to process waste generated in agriculture in order to create ecological bricks and coating materials, using different mixtures and formulations, employing thermo-physical characterisation and thermal optimisation. Karima is also working on proving the importance of traditional and bioclimatic architectural design configurations in providing green and sustainable buildings.

2018 Best Presenter Award – Excellent Oral Presentation, International Conference on Physics Alumni (ICPA)

Research focus: building materials, building's energy efficiency, traditional architecture, waste management, and sustainability

2019



Sierra ISON

Canada

PhD Student in Marine Social Science and Conservation

University of Tasmania, Australia

Sierra's research is examining how to identify conservation outcomes in complex stakeholder systems. She will be using the Northwest Shelf Flatback Turtle Conservation Programme as a case study to test the use of Outcome Mapping to link marine science to action.

In recognition of that conservation challenges are embedded within complex multi-stakeholder environments, the field of conservation science is quickly emerging as an action-orientated discipline. As governments, non-governmental organisations, and industry are under pressure to demonstrate project success via tangible impacts, it is imperative to not only demonstrate policy changes but also how these changes are facilitated by the stakeholders involved. Thus, there is a need to improve stakeholder participation.

The goal of Outcome Mapping is to bring about behaviour change to support long-term outcomes by considering conflict resolution, combining divergent knowledge systems, participation, and social learning within complex stakeholder systems. Sierra's objective is to explore the potential utility of Outcome Mapping as a framework to complement existing participatory research approaches to create conservation outcomes.

Research focus: marine social science, stakeholder engagement, participatory conservation

Ernest Dadis Bush FOTSING

Cameroon

PhD Student in Zoology with specialisation in Primatology

University of Dschang, Cameroon

In his current research, Ernest is planning to focus on human activities, feeding and nesting habits of Nigerian-Cameroon chimpanzees, and on human activities in Mpem and Djim National Park in Cameroon. This should lead to developing sustainable strategies for management of this area and to saving a viable population of chimpanzees in their natural environment.

illegal activities are prominent. In the past, Ernest studied the behavioural ecology of a western lowland gorilla group in Cameroon; his current study aims at assessing a community of these chimpanzees living in a forest-savanna environment that has not been previously studied and at promoting long-term research as well as conservation activities in this area.

Nigerian-Cameroon chimpanzees are cited as a critically endangered species by the International Union for Conservation of Nature and are known as the subspecies with the smallest population size (3,000-9,000 individuals) as well as distribution (restricted to Cameroon and Nigeria) among all chimpanzees known across Africa. Indeed, more investigation needs to be done in order to promote conservation of this species as their behavioural ecology is not well understood in Cameroon where

2019



Research focus: ecology and evolutionary biology, conservation of biodiversity

Dr Andrew Ng KAY LUP

Malaysia

PhD in Chemical Engineering

Current position: Lecturer of Chemical Engineering, Xiamen University Malaysia, Malaysia

Andrew's expertise comprises chemical thermodynamics, process, and material modelling with applications focused on organic-based perovskites. These materials are highly interesting for the construction of supercapacitors, which can be used as an alternative or in tandem with metal-based rechargeable batteries to spearhead e-mobility technology towards the production of fast charging electric vehicles.

Andrew's research focuses on the pseudocapacitance of organic polymeric perovskites for supercapacitor applications. Organic polymers can be made from various sustainable carbon sources and, thus, are not dependent on limited elements. In addition, organic polymeric perovskites are cheaper, lighter, and of better physicochemical properties tunability than metal-based perovskites.

- 2018 2nd Runner-up in Young Persons' World Lecture Competition
- 2018 Champion of Materials Lecture Competition
- 2018 STEM Fellow, National STEM Movement
- 2018 Gold Medal in National Nanotechnology Olympiad
- 2017 Silver Medal in National Nanotechnology Olympiad
- 2016-2019 MyBrain15 Scholar

2019



Research focus: role of excitons and polarons on the pseudocapacitance of polymeric layered perovskite

2019



Benjamin KEENAN
United Kingdom
PhD Student in Biogeochemistry
McGill University, Canada

Droughts and water shortages are two of the many problems that will increase with climate change. It is believed that ancient Maya societies have declined as a result of drought. Benjamin's research to verify this theory is based on organic geochemistry by linking past population dynamics with hydrological dynamics in the Maya Lowlands. Benjamin is developing techniques to measure population and hydrological changes by analysing various organic molecules preserved in lake sediments. The methods Benjamin is developing could be applied in lakes anywhere to

examine how ancient population development corresponds to changes in climate.

The goals of his project are twofold: firstly to examine the relevance of drought in causing societal decline; and secondly to obtain a more nuanced understanding of the weaknesses in the way ancient Maya societies responded to the changing climate. He sees potential that modern cities like Mexico City and Cape Town may benefit from his findings and get new perspectives on how to deal with droughts and water shortages. Benjamin also intends to use the insights from his research as convincing narrative for the public in the ongoing discussion about climate change.

Research focus: climate change, geochemistry, and ancient societies

2019



Yee Qing LAI
Malaysia
PhD Student in Chemical Engineering
Universiti Teknologi Malaysia, Malaysia

Yee Qing is researching a practical method to increase thermal efficiency of manufacturing processes in order to reduce the amount of energy needed and, thus, reduce carbon dioxide emissions.

Waste heat released from manufacturing processes can be recovered and utilised to heat other parts of the processes via heat exchanger networks (HEN). By performing heat integration via HEN, the amount of waste heat released into the environment and the amount of energy needed for a given process can be reduced significantly.

The main objective of Yee Qing's research is to develop a new graphical method to improve energy efficiency of existing HEN. A graphical method is easier to understand and to use for normal industrial practitioners. The method proposed can be used to diagnose and retrofit existing HEN in the manufacturing plants. Yee Qing looks into background processes to identify process changes opportunities instead of focusing on retrofitting the HEN alone. Her proposed method, moreover, considers plant-layout factors which may constrain the maximum heat recovery that can be achieved by a given process.

Research focus: pinch analysis, industrial heat recovery, heat exchanger network retrofit

Samjhana KHANAL
Nepal

Master's Student in Plant Breeding and Genetics

Wageningen University & Research, the Netherlands

Samjhana aims to develop better seeds (maize, quinoa) for her home country Nepal as well as for other developing countries. Better seeds would be more tolerant to drought and should, at the same time, contain more nutrients that help to prevent malnutrition.

Samjhana is an award-winning social activist and young researcher from Nepal. Apart from researches, she often organises agricultural campaigns in Nepal and advocates for right usage of fertiliser in crop growth and food security.

Lots of people suffer from malnutrition or undernutrition, which can cause serious diseases and may result in an increased infant mortality rate. People in countries of the developing world largely have to depend on rice, wheat or maize as their daily food. For this reason, Samjhana works on growing quality maize and quinoa with additional proteins, vitamins and other essential nutrients. Since maize is often threatened by drought, she is also researching drought-tolerant seeds and resistant varieties of maize.

Research focus: plant breeding, genes and genomics, and biotechnology

2019



Dr Lizzy LOWE
Australia

PhD in Ecology

Current position: Researcher in Urban Ecology at the Macquarie University, Australia

Lizzy is studying the impact of the use of insecticides on biodiversity in cities, especially insects and spiders. Insects play a crucial role in maintaining functional terrestrial ecosystems, including cities.

Cities require healthy green spaces to create environments available for both the physical and mental well-being of their residents. However, simply planting trees and grass is not sufficient. In order to provide healthy ecosystems for both nature and people, green spaces require biodiversity. Insects are a key component of urban biodiversity, but unfortunately drastic declines in insect populations are being recorded around the world. One of the biggest threats to invertebrates even in urban environments is the use of insecticides.

The aim of Lizzy's multidisciplinary research is to quantify the impacts of insecticides on the healthy functioning of urban environments, determine the reasons why urban residents use insecticides, and develop and test sustainable alternatives to using insecticides in cities. She also aims to raise awareness of unintended side effects of insecticide use and of the significance of insects, spiders and other invertebrates for ecosystems.

Research focus: urban ecosystems, biodiversity, impact of insecticides

2019



2019



Sai MA

China
PhD Student in Law

The Chinese University of Hong Kong, Hong Kong, China

Sai's research aims to analyse the role and competence of international investment arbitration in enforcing the clean energy policies.

To make clean energy transition successful sufficient investment in renewable energy is necessary. However, disputes between foreign investors and states are inevitable. Investor-state dispute settlement (ISDS), as an enforcement mechanism under the investment law regime, enables foreign investors to settle these disputes through arbitration proceedings with the states in which they have invested. As investment disputes with

environmental components take a large portion of the ISDS caseload, the influence of ISDS on environmental regulations and policymaking arises wide concern.

Sai strives to review the environment-investment interaction in the context of the energy transition through the lens of ISDS. She studies the constraints regarding the role and competence of ISDS in enforcing energy policies. Her research project contains an overview of the nexus between the climate goals, the clean energy transition, and the investment law regime. Besides, a case study approach will be used to examine the energy transition-related ISDS disputes.

Research focus: law, international investment arbitration, energy transition, and climate change

2019



Marcelo MENEZES MORATO

Brazil
PhD Student in Control and Automation Engineering

Universidade Federal de Santa Catarina, Brazil and Université Grenoble-Alpes, France

Marcelo has been working on several research projects on management and control of renewable energy systems. He started studying the possibilities of using huge amounts of biomass waste in the sugarcane industry in Brazil and went from management of microgrids to looking at larger systems integrating different sources of renewable energy.

Marcelo studied microgrids on sugarcane processing plants using biomass, sun, and wind energy. These plants can sustain

themselves and sell power to the network distributor. Marcelo's part in this project was to find ways to automatically manage the different energy sources and power consumers.

To control microgrids, observation and fault analysis are essential. To manage such systems, predictions using information on upcoming conditions such as weather forecasts for solar and wind power are necessary. Marcelo developed corresponding mathematical models. Controllers for microgrids are being planned on the basis of such models. Essentially, Marcelo aims to design automatic controllers that determine when to use, store, distribute, or convert each available renewable source so that the energy generation becomes continuous.

Research focus: control and automation engineering, microgrids, and renewable energy

Mahder MEKONNEN SHUMI

Ethiopia
MSc in Aquatic Ecosystems and Environmental Management

Current position: Lecturer in Aquatic Toxicology, Addis Ababa University, Ethiopia

Mahder's research focuses on treatment of healthcare wastewater in constructed wetland cells. Untreated healthcare wastewater is particularly dangerous due to its often high concentrations of infectious agents.

Mahder's study was aimed to characterise hospital raw wastewater and evaluate the treatment efficiency of a species of bulrush and a species of reed in wetland cells. Constructed wetland is cost effective, easily manageable, and efficient for the treatment of wastewater of any kind after primary treatment. The wetland in the study has four cells. One serves as a control cell with no plants while the others are planted with Typha latifolia, Phragmites karka, and a mix of both plants. The treatment efficiency of these cells was observed by measuring physico-chemical and biological water quality parameters.

Overall, the highest removal for most pollutants was detected in the cell with mixed plantation. Mahder sees this as a good indication focusing on a combination of the two plants in a study for large-scale wastewater treatment. In addition, she recommends further investigation on the removal efficiency of wetland cells for coliforms and antibiotic resistant bacteria.

2019



Research focus: ecotoxicology, wastewater treatment, and water quality

Dr Rubén MOCHOLÍ MONTAÑÉS

Spain
PhD in Energy and Process Engineering

Current position: Postdoctoral Researcher in Energy Technology at Chalmers University of Technology, Sweden and Research Scientist at SINTEF Energy Research, Norway

Rubén makes use of digitalisation to achieve sustainability by working with the digital twin technology. His work contributes to the development of novel process designs and optimal operation strategies of energy- and carbon-intensive processes to increase their efficiency and reduce greenhouse gas emissions.

The energy sector is the main contributor to climate change, accounting for around 60 percent of total global greenhouse gas emissions. Rubén's research includes process design, modelling, simulations, plant wide control, and experimental testing at industrial and research facilities. His work focuses on the development of high-fidelity steady-state and dynamic process models, and on testing

novel solutions in a virtual environment by means of dynamic simulations within digital twin technology.

Rubén's research includes the development of dynamic process models for various de-carbonised thermal power generation and industrial processes.

2019



Research focus: energy and process engineering and dynamic modelling

2019



Emmanuel OLAMIJUWON

Nigeria

PhD Student in Demography and Population Studies

University of the Witwatersrand, South Africa and University of Eswatini, Eswatini

Emmanuel focuses in his research on advancing sexual health education for young African adults in the digital age. The motivation for this is that early exposure to good and quality sexuality education has clear implications for avoiding sexual exploitation, abuse, and achieving healthy sexual development. Until today, there is scanty evidence on how social media can be used to effectively communicate sexual health information to young African adults. Emmanuel is targeting this research gap and is harness-

ing the power of social media in helping adolescents and young adults to make better and informed decisions about their sexual and reproductive health.

Emmanuel's research is set on the social media platform Facebook in the form of an online collaborative and advocacy network on sexual and reproductive health by and for young adults in Africa.

2019-2020 Policy Communication Fellowship, Population Reference Bureau (PRB) and the African Institute for Development Policy (AFIDEP)

Research focus: sexual and reproductive health, digital demography, and adolescent health

2019



Mohammad RAMEZANI TAGHARTAPEH

Iran

PhD Student in Chemistry/Material Sciences

Swinburne University of Technology and the Commonwealth Scientific and Industrial Research Organisation, Australia

Mohammad aims at designing a fully rechargeable organic battery with high capacity and long cycle life that can compete with current lithium-based batteries.

Organic or metal-organic batteries might contribute to minimise the threats connected to production and recycling of lithium-based batteries. All-organic batteries also allow for a tailored structural design, tuned redox potential and capacity, and flexibility which open opportunities to design the ideal battery for a specific ap-

plication. That way, safer and biocompatible batteries without need for energy- and cost-intensive recycling processes could be provided.

Mohammad has been working on the synthesis of 2D and 3D conducting polymer networks to be used in lithium-sulfur and lithium-polymer batteries. His goal is to design and synthesise new conducting monomers to prepare 2D or 3D polymer networks with n-type, p-type or bipolar type characteristics being used as anode, cathode or as both electrodes in either metal-polymer or all-organic batteries. He believes that this type of organic energy storage system could contribute more to a sustainable than the current metal-based energy storage systems.

Research focus: chemistry and material sciences

Dr Yalinu POYA

Papua New Guinea

PhD in Chemistry

University of Glasgow, United Kingdom

In her research, Yalinu is developing novel catalysts for ammonia synthesis. Ammonia is essential for the production of synthetic fertilisers, which are used in agriculture in huge quantities. Currently, the process of ammonia production requires large-scale plants consuming great amounts of energy and leading to a high carbon dioxide output. Yalinu aims to make ammonia synthesis more sustainable, highly efficient, and applicable in small-scale plants.

priate to small-scale reactors close to its point of use. In her study, Yalinu is using magnesium oxide as a catalyst support for cobalt rhenium in order to obtain a more highly dispersed catalytic phase. She expects that this approach could potentially lead to the development of high performance catalysts.

2019-2020 University of Glasgow Future World Changer

To reduce the harmful effects and yield massive rewards both in terms of economic and environmental benefits, there is a great interest in the development of local small-scale ammonia production plants based on the use of renewable energies. In such a context, Yalinu has taken up the challenge of developing new ammonia synthesis catalysts which are active under less severe operational conditions appro-

2019



Research focus: metal catalysts for ammonia synthesis in the Haber-Bosch process

Priyanka SARKAR

India

PhD Student in Ecology and Environmental Science

Assam University, India

Priyanka is researching the conservation and sustainable management of wetlands in developing countries under the ecosystem services perspective. Wetland management is highly relevant for the implementation of several UN Sustainable Development Goals.

Priyanka's research focuses on understanding how the various ecological aspects of wetland ecosystems in the tropics are related to socio-economic dimensions, livelihood sustenance, and human well-being. She is studying the ecosystem services and economic valuation of Chatla – one of the largest floodplain wetlands in Northeast India.

With an interdisciplinary approach, Priyanka attempts to find the link between the natural capital of wetlands and the well-being of the dependent communities.

This includes socio-economic assessment of these communities, ecological assessment of biophysical structures, spatial assessment of the land use, and economic valuation in terms of providing major provisioning services and water regulating service. She believes that her findings will enlighten the local stakeholders and influence the policy-makers to adopt scientific and sustainable management strategies for Chatla and similar wetlands.

2019 Wetland Ambassador by the Society of Wetland Scientists, United States of America

Research focus: ecosystem services, conservation and sustainable management of wetlands

2019



2019



Jaewon SON Republic of Korea

MA in International Development and Cooperation

United Nations Development Programme (UNDP), Seoul Policy Center, Republic of Korea

In her research, Jaewon focuses on the effect of access to water, sanitation, and hygiene (WASH) on girls' access to education using the Lao Cai Province in Vietnam as an example. Her main goal is to show how access to clean water for girls in developing countries is essential to reach several Sustainable Development Goals (SDGs).

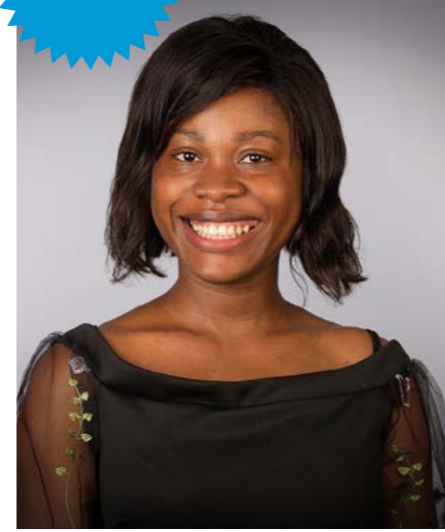
By focusing on the compulsory school age range, her study argues that inadequate access to WASH is one of the major

barriers to girls' education. The relationship between primary school attendance rates of girls and access to WASH at schools are examined during the study. While researching the topic, she realised that sustainable development would not be achieved without investing in people living in developing countries, and in girl's education in rural areas in particular.

- 2019 NextGen Ambassador Fellowship from Internet Corporation for Assigned Names and Numbers (ICANN) to attend ICANN66 in Montréal, Canada
- 2019 Speaker at Internet Governance Forum (IGF) 2019 of the United Nations (UN) in Berlin, hosted by the Federal Government, Germany

Research focus: international development, gender equality, and access to water, sanitation and hygiene

2019



Georgina Esi TAKYI-ANNAN Ghana

Master's Student in Architecture

Current position: Graduate Researcher in Architecture, Southeast University, China

Georgina dedicates herself to the question of how sustainable building design concepts can be successfully implemented in developing countries. She intends to incorporate green concepts and sustainable architectural designs into affordable housing units in developing countries.

While researchers have devised and carried out much work on green urban designs in various parts of the world, there has been no corresponding focus on these issues in West Africa and in developing

countries in general. Georgina, therefore, takes a closer look at these regions and on the aspects of affordability. The purpose of her research is to make housing affordable for all social classes through the implementation of green concepts and sustainable building designs. With this approach, she attempts to simultaneously address these challenges pertaining to housing deficit, lack of affordable housing and the negative impact of buildings on the environment in West Africa and other developing countries.

Research focus: green and sustainable design approach to achieving affordable housing in developing countries and West Africa

Dr Vikram SONI India

PhD in Mechanical Engineering

Current position: Postdoctoral Research Fellow, Department of Mechanical and Industrial Engineering, University of Toronto, Canada

Heat and cold waves particularly affect underprivileged people as they often can neither afford cooling nor heating of their homes. A sustainable solution for this may be phase change material-based sustainable and low-cost thermal energy technologies.

To address this, Vikram's research currently focuses on characterising high performance working fluids for geothermal energy applications – including advanced phase change slurries and blends. Also, he is working towards the establishment of high-throughput microfluidics-based industrial fluid testing systems and AI-guidance of the experimental system.

During his PhD, Vikram has worked towards addressing the issue of thermal stress by exploring so-called thermal batteries. Such batteries can store energy in form of latent heat due to the use of phase changing materials (PCM) and can be placed on the roofs of houses. Vikram developed a novel high-fidelity modelling-based prediction tool for PCM melting and undercooled solidification scenarios.

2019



Research focus: phase change material-based heat transfer fluids, microfluidics-based fluid testing, machine learning, and AI-guidance

GREEN TALENTS

2018

Applications total 736
 Application countries 102
 Winners 25



2018



Becky Nancy Achieng' ALOO

Kenya

PhD Student in Biodiversity and Ecosystems Management at Nelson Mandela African Institute of Science and Technology, Tanzania

Current position: Tutorial Fellow at University of Eldoret, Kenya

In her research, Becky targets indigenous rhizobacteria associated with Irish potatoes (*Solanum tuberosum* L.) and their feasibility in biofertilisation and bio-stimulation of Irish potato cropping systems in Tanzania. She examines the biology and physiology of the bacteria, their genetics and phylogenetic relationships as well as their effects on potato physiology and growth parameters. Irish potatoes are one of the most cultivated and consumed crops worldwide, but are also one of the heaviest fertiliser-demanding crops. The synthetic

fertilisers have negative impacts on the environment and have been associated with chemical residues and traces in food products.

Becky's research has shown that rhizobacteria can contribute to improved plant health through the production of plant growth hormones, solubilisation of plant nutrients, and enhancement of root surface area and root development. In her research, Becky is driven by finding unique and novel rhizobacterial isolates that can be formulated into biofertilisers and bio-stimulants replacing or reducing the usage of chemical fertilisers.

Research focus: biodiversity and ecosystem management

2019 L'Oreal-UNESCO Sub-Saharan Africa Young Talents Award for young women in Africa for scientific excellence and mentorship

Dr Nithi ATTHI

Thailand

PhD in Electronics and Applied Physics

Current position: Researcher at National Electronics and Computer Technology Center, Thailand

Biofouling causes serious environmental damage and high costs. Recent techniques to deal with the problem are ineffective or harm aquatic ecosystems. Nithi is developing robust microstructures on flexible material surface to produce an 'everything-free' antifouling surface.

Biofouling describes the unwanted accumulation of biological or inorganic matter on underwater or moist surfaces. The consequences of biofouling are vast. Medical biofouling can cause the spread of infectious diseases. Marine biofouling results i.e. in increased ship hull drag. Nithi is researching non-biocide-based technologies to prevent biofilm formation – the first step of biofouling – by using superhydrophobic and oleophobic surfaces. Until now, these surfaces are ineffective. Nithi

has identified the need to develop a much smaller micro-pattern (< 400 nm). He is working on the large-area fabrication of robust 3-D microstructures on composited materials. Nithi will seek partners in the micro/nano fabrication field for high-throughput and large-area patterning and partners in the medical field in order to help build bacteria-free operating rooms. The technology will also be applicable for ship surfaces and underwater structures.

2018



Research focus: large-area flexible polymers with antifouling robust micro-structure for marine and medical applications

2018



Dr Jamil Alexandre AYACH ANACHE

Brazil

PhD in Hydraulics and Sanitary Engineering

Current position: Professor at School of Engineering, Federal University of Minas Gerais, Brazil

In his research, Jamil is assessing water partitioning and the variability of hydrological processes in the critical zone of the Brazilian savanna (Cerrado). He also aims to quantify and model soil erosion processes and water cycle under common land uses for this area.

The region of the Cerrado has vital hydrological functions that serve the rest of the ecosystem. Hence, there is a need for observation and better understanding as well as research on soil vulnerability and water erosion.

Jamil aims to establish hydrological reference values in the Cerrado. In addition, he is identifying the hydrological ecosystems services of the wooded Cerrado. This involves estimating and modelling the variability of water balance components. His goal is to create an understanding of water partitioning in different land uses and soil erosion processes in connection with land use changes and climate variability. Soil conservation is a strategic topic in Brazil, which needs to be established to maintain natural resources as well as food and water production. Water availability and soil sustainability need to be assured.

Research focus: hydrological monitoring and modelling

2018



Dr Ozgul CALICIOGLU

Turkey

PhD in Environmental Engineering

Current position: Environmental Engineer – Young Professional at the World Bank, United States of America

Ozgul is involved in environmental management and policy-making to achieve public engagement in sustainable development. Her interest lays in bridging the gap between science and policy, and providing answers to sustainability-related issues to policy-makers and the public. Ozgul, therefore, joined The World Bank's Environment, Natural Resources and Blue Economy Global Practice in 2019. Through her involvement in Brown Agenda, particularly on marine plastics pollution, she brings knowledge and experience related to the

water-energy-food nexus and waste valorisation. She also contributes to Environmental and Social Framework activities carried out for various development projects in the region, in order to safeguard environmental sustainability.

Ozgul's research focuses on the development of reliable bioenergy and biomaterial supply networks, particularly on the technical, economic, and environmental feasibility of large-scale wastewater-derived aquatic plant biorefineries. She also worked for the Food and Agriculture Organization of the United Nations, contributing to development of policy instruments and global guidelines for sustainable bioeconomy deployment.

Research focus: biorefining, bioeconomy, and solid waste management

Dr Jan BRUSSELAERS

Belgium

PhD in Bioscience

Current position: Researcher Circular Economy at VITO, Belgium

Jan's research focuses on the concept of circular economy. Moreover, he targets technological advances in order to place innovative emphasis in this context.

Alternative economic systems require further investigation, especially the macro-economic analysis is still lacking. Jan aims to implement circular economy systems where all material will flow in one loop. Circular economies are more sustainable than linear economies. Decreased raw material use and waste generation allow natural systems to regenerate. Jan aims to achieve this through implementing and developing refurbishment, reuse, sharing, and material recycling. These initiatives are set to become part of an integrated approach towards circular economies.

Jan's research refers to gathering, processing, and analysing all available data on circular economy. With this approach, he can analyse the indicators on circular economy and support the uptake of the circular economy by applying macro- and micro-economic modelling techniques, which demonstrate the potential of circular economies. His methods will map and quantify the demand and supply for products and materials to facilitate the match-making between consumers and suppliers.

Research focus: modelling and developing the concept of circular economies

2018



Dr Badabate DIWEDIGA

Togo

PhD in Climate Change and Land Use

Current position: Researcher in Climate Change and Land Use, University of Lomé, Togo

Badabate's research focuses on integrated land use and resilient landscapes. Following a multidisciplinary approach, he explores sustainable pathways and strategies for an integrated management of natural capital and helps communities in rural areas to develop sustainable socio-ecological landscapes.

One of the biggest challenges for sustainable development is the ongoing increase of the world's population. Rural communities in particular must find a way to sustain their livelihoods and simultaneously mitigate climate change. Therefore, it is necessary to understand the complex interaction among environmental and social components at landscape scales.

After studying Environmental Management at the University of Lomé in Togo and Climate

Change and Land Use under the WASCAL Programme at Kwame Nkrumah University of Science and Technology in Ghana, Badabate conducted additional research in Tunisia and Nigeria through collaboration with the International Center for Agricultural Research in Dry Areas (ICARDA). Badabate aims to contribute to building integrated land use systems and processes at community level in West Africa in order to sustain green growth and counteract climate change.

Research focus: integrated land use and resilient multifunctional landscapes

2018



2018



Dr Mario Alejandro HEREDIA SALGADO

Ecuador

PhD in Energy Systems and Climate Change

Aveiro University, Portugal

Mario seeks to ease reliance on fossil fuels and promote carbon sequestration in the agro-industrial sector of Latin America by the integration of energy conversion devices able to transform agro-residues into perennial forms of carbon and thermal energy. He coordinates a collaborative project that groups research centres and universities in Portugal and Ecuador, non-governmental organisations, government ministries, farmers associations, peasant leaders, industrial guilds, and international innovation agencies.

Mario develops technology that supports the transformation of agro-industries of developing countries into early-stage biorefineries. In order to transfer technology from the laboratory to industry, he founded the start-up "Andes Bioenergy", which has already installed several sustainable energy systems within the coffee, cacao, and palm oil sector in Ecuador. In order to understand and at the same time affect change towards a more sustainable future, Mario is currently integrating a transformative research approach into his academic work with the support of the Integrative Research Institute on Transformations of Human-Environment Systems (IRI THESys) of the Humboldt University of Berlin.

2019 ISC3centre Award for Entrepreneurial Spirit in Sustainable Chemistry, Germany

Research focus: integration of thermochemical conversion processes to upcycle agro-residues into carbon-related products and renewable thermal energy

2018



Sagar KAFLE

Nepal

MSc in Biosystems Engineering

Current position: Lecturer in Agricultural Engineering at Institute of Engineering, Tribhuvan University, Nepal

Sagar is seeking to end coal fuel dependency of Kathmandu, one of the world's most polluted cities, by producing cleaner fuel pellets. In addition to this, he is encouraging societal change in Nepal by educating young people and influencing policy makers. Sagar's scientific research has focused on producing fuel pellets, made by using waste materials from forest-based biomass and agricultural crop residues.

Nepal lacks a suitable infrastructure to address environmental problems effectively.

Similarly, there is a lack of strategic planning, which would be necessary to get sustainability efforts off the ground. Therefore, Sagar hopes to educate and to enthuse young people with sustainability science by giving lectures and establishing a campus research laboratory. He is striving to provide students with the skills necessary to succeed in sustainability science. Furthermore, he is growing a political network in order to influence policy makers: Sagar is collaborating with the think tank group of his country's former minister of science, technology and environment. He is a fellow of the Asian Institute of Diplomacy and International Affairs (AIDIA), a foreign policy think tank based in Kathmandu. Additionally, he is persistently presenting green solutions to Nepal's implementing bodies.

Research focus: fuel pellets, energy policy, energy politics, renewable energy

Dr Randika JAYASINGHE

Sri Lanka

PhD in Environmental Engineering Technology/Environmental Technology

Current position: Senior Lecturer, Faculty of Technology, University of Sri Jayewardenepura, Sri Lanka

Randika identifies waste as a valuable material for communities in developing countries. Mismanagement of solid waste is causing serious problems, in particular, the disposal of non-degradable materials such as plastics, metallised films, and synthetic textile waste. She is promoting the sustainable use of available resources, minimising negative impacts, and maximising the use of discarded materials. Randika also focuses on education for sustainability and creating awareness on waste upcycling. Randika manages the research and development project "Australian-Sri Lankan University partnerships to develop community-based waste upcycling businesses" and collaborates with the organisation "Waste for Life". She aims to devise composite materials using waste materials collected

from the source and has already generated positive dialogue with many industries to collect and sort waste and to appreciate the resource value of waste. Four waste upcycling start-ups have been established. These businesses make use of the innovative products developed through her research and will promote upcycling practices in communities across Sri Lanka.

2018



Research focus: sustainable waste management, waste upcycling and waste-based business development, eco-designs and innovations, materials development, and circular economy

Nirina KHADGI

Nepal

PhD Student in Environment Science and Engineering

Hohai University, China

Nirina is seeking to boost the efficiency of water treatment processes by developing photocatalysis techniques. She recognises the re-use and recycling of water supplies as the most efficient method for increasing water sustainability. Photocatalysis entails advanced oxidation processes, which involve the in-situ production of highly reactive transitory species accelerating abiotic pathways to degrade persistent organic compounds and microorganisms in water, without producing any secondary pollution.

Nirina's research has generated increased charge transfer and enhanced visible light absorptivity, thus, improving overall photocatalytic performance. She hopes to prove that the technology can be scalable and can perform in ambient temperatures and pressures. Moreover, she endeavours

to make it available as a decentralised and point-of-use technology that can be beneficial to isolated communities in rural regions, meaning it will become a low-cost, environment-friendly and sustainable treatment technology. Nirina intends to use her findings to increase access to clean drinking water in her home country of Nepal.

2018



Research focus: heterogenous photocatalysis

2018



Ishani KHURANA

India

PhD Student in Chemistry

University of Delhi, India

In her research Ishani aims to study the removal of toxic nitro organics which cause wastewater decontamination. In India, where Ishani has her roots, water scarcity and droughts are increasingly common and rivers are being polluted by the discharge of untreated sewage and organic pollutants. Limited access to safe water has long-term impacts on health, education, and livelihoods.

Ishani is investigating the synthesis of graphene oxide, reduced graphene oxide, and graphene based nanocomposites with

metals. Following this, she will be examining wastewater decontamination and toxic nitro organics. Through her research, she aims to remove those toxic nitro organics, such as dyes and explosives. Therefore, she has developed a customised graphene filter that efficiently removes dye from contaminated water. Another part of her research is converting these water pollutants into less toxic and useful compounds. Ultrathin graphene-based water-separation membranes have been used in the field of water treatment and Ishani aims to transfer her research findings into a reusable, portable and also cost-effective graphene-based membrane device that will efficiently decontaminate water.

Research focus: synthesis of graphene-based composites for the removal of water pollutants

2018



Dr Shirin MALEKPOUR

Australia

PhD in Environmental Sociology – Strategic Infrastructure Planning

Current position: Senior Lecturer, Monash Sustainable Development Institute, Monash University, Australia

Shirin's research can be positioned at the interface of Urban Planning and Social Sciences. She studies processes of long-term planning and policy making for sustainable development in cities, regions, sectors, as well as individual organisations, and designs interventions to assist decision makers with developing robust strategies in the face of uncertainties and complexities.

The processes Shirin has designed include, but are not limited to, new ways of scenario planning, backcasting and stress-testing.

These processes can challenge implicit assumptions and biases underlying strategic decisions, explore future disruptions, reveal vulnerabilities, and help with devising coping strategies. She has advised various organisations in the water and the food sector on their long-term strategies and her interventions have been incorporated into industrial and governmental strategic planning processes. She investigates how the knowledge in the fields of Strategic Planning and Futures could be used to support the implementation of the Sustainable Development Goals. Her professional goal is to become a thought leader in the area of sustainable development and to actively inform business and government decision making on this topic.

Research focus: long-term planning and governance, decision making under deep uncertainty; processes and tools to support the implementation of the Sustainable Development Goals

Brigadier LIBANDA

Zambia

PhD Student in Atmospheric and Environmental Science

University of Edinburgh, United Kingdom

Brigadier targets the lack of data of growth rates for the Miombo woodlands, which are widespread in his home country of Zambia. His goal is to contribute to the understanding of the tree growth rate across the woodlands.

Resource depletion, disturbances, and uncertainties inherent in climate change pose a threat to the sustainability of the Miombo woodlands. This is especially concerning as these areas provide ecosystem services which are essential to the welfare of the rural majority and habitation for rare species of animals. Chitemene, the farming system in this area, threatens the sustainability. Trees are felled on a large scale, piled, and burnt to generate ash that fertilises the crops. As it is, only a small part of the ash is actually used for growing crops.

Brigadier examines the growth rate which is helpful for sustainable management. Scientists can use predicted growth rates to analyse how ecosystem services provisioning will change in the future and provide a better understanding into the role of the woodlands in the carbon cycle. Brigadier also carried out an intensive literature review to establish the current comprehension of tree growth.

2018



Research focus: ecosystems and climate dynamics

Nsilulu Tresor MBUNGU

Democratic Republic of Congo

PhD Student in Electrical Engineering

University of Pretoria, South Africa

Tresor is designing an adaptable smart metering system for electrical system applications. His research aims to develop a sustainable energy approach by creating optimal control behaviour, which can be implemented inside or outside intelligent meter devices.

The global power supply faces many challenges to keep up with the ever-increasing energy demand, whilst at the same time assuring sustainable development. Globally, more than 1.2 billion people still do not have any access to the electrical grid. This is also the case for a significant number of people in the African continent and the Democratic Republic of Congo, the home country of Tresor.

In his research on the smart grid environment, Tresor aims to create a new generation of the intelligent metering

system to improve the efficiency of energy flow on the network. This consists of optimally integrating renewable energy, minimising production costs, operation and consumption on the demand side, and reducing atmospheric emissions levels from conventional electrical grids. With the improvement of energy flow, Tresor will at the same time combat global, social, and economic problems in the energy sector.

Research focus: electrical engineering, energy systems, renewable energy, and smart grids

2018



2018



Dr Wee-Jun ONG

Malaysia

PhD in Chemical Engineering

Current position: Associate Professor in Chemical Engineering at Xiamen University Malaysia, Malaysia

In his research, Wee-Jun focuses on solar energy conversion and energy storage by mimicking the ingenuity of nature. The main focus is on designing two-dimensional (2D-based) nanocomposites, which are analogous to an "artificial leaf" for CO₂ reduction, H₂O splitting and N₂ fixation.

The idea of Wee-Jun's research lies in the design of novel techniques for engineering heterojunction photocatalysts for efficient solar light utilisation. With the development of high-efficiency photocatalysts, the na-

nocomposites were employed to convert sunlight to highly energetic sustainable fuels. Wee-Jun collaborates with researchers in the field of computational modelling and advanced spectroscopic characterisations.

As an Assistant Professor at Xiamen University Malaysia, Wee-Jun is developing his ideas among other academics to potentially create a renewable energy research hub on the campus.

- 2019 Visiting Professor in the Lawrence Berkeley National Laboratory (LBNL), United States of America
- 2019 Participation at the 69th Nobel Laureate meeting Lindau, Germany

Research focus: engineering next-generation nanomaterials toward efficient artificial photosynthesis for sustainable fuel production from sunlight

2018



Mark POLIKOVSKY

Israel

PhD Student in Environmental Bioengineering

Tel Aviv University, Israel

Mark works on developing a biorefinery concept using seaweeds as feedstock. His research topic is the influence of seaweed-associated bacteria on sugar and protein content and composition.

Mark focuses on simultaneously producing biofuels, proteins, and chemicals from seaweeds cultivated offshore. His main interest lies in developing a sustainable infrastructure in order to meet the growing world population's demand for food and biofuels. Bioethanol, obtained from i.e. sugarcane or corn, has a negative impact

on the environment as well as on food prices. Within his research, he isolated bacteria and analysed the influence on the seaweed growth rate and sugar composition. He found out that the utilisation of some bacteria leads to an increase of the ethanol production. His goal is to examine how those bacteria influence the seaweed's chemical composition.

Apart from this, Mark works on identifying proteins and allergens, so alternative proteins, which are safe for human consumption, can be created out of seaweed. Furthermore, Mark developed a method for detecting the toxins that lead to a reduction of the efficiency of the fermentation process for bioethanol mass production.

Research focus: interaction between seaweed and bacteria for improving the production of biofuel and protein out of seaweed

George Kofi PARKU

Ghana

PhD Student in Chemical Engineering

Karlsruhe Institute of Technology (KIT), Germany

Following a successful master's study, George continued to strive in establishing himself in the research environment. Having accrued major practical experiences with pyrolysis processes, he proceeded into technology and systems assessments of pyrolysis and other thermochemical processes, some of which include life-cycle assessment and thermodynamic modelling.

- 2019 Visiting Researcher at German Biomass Research Centre (DBFZ), Germany
- 2019 Doctoral Researcher at Karlsruhe Institute of Technology (KIT) using thermodynamics to optimise aqueous pyrolysis condensates for downstream microbial conversion

2018



Research focus: thermochemical conversion of biomass and other carbonaceous wastes into fuels and other value-added products

Shilpa RUMJEET

Mauritius

MSc in Chemical Engineering

Current position: Project Coordinator in Bioprocess Engineering at University of Cape Town, South Africa

Shilpa has dedicated her work to the study of wastewater biorefineries. Valorisation of wastewater from the pulp and paper industry is one of her main goals.

Natural resources are depleting and water as a limited resource needs sustainable management. Wastewater biorefineries (WWBRs) offer the possibility of treating wastewater, while using the nutrients contained within as resources to make bi-products. To make WWBRs a profitable venture, production of high value products must be targeted with any residual organics being converted to low value energy products. In order to enable this, engineering processes need to be combined with biotechnological advances to enhance productivity of bioproducts along different bioreactors. Together with her team, she

is working towards the successful implementation of a pulp and paper wastewater biorefinery in South Africa.

Shilpa's main objective is to design an implementation framework which can be transferable to other industries, who wish to valorise their wastewater. Her core research interest is the circular bio-economy where petroleum derivatives are substituted by their bio-based counterparts and waste is treated as a resource.

2018



Research focus: wastewater biorefinery

2018



Dr Mohit SARAF

India

PhD in Metallurgy Engineering and Materials Science

Current position: Project Scientist at the Department of Chemical Engineering, Indian Institute of Technology Kanpur, India

In his research, Mohit primarily focuses on ground-up design and fabrication of nanostructured materials for supercapacitor devices. These devices store energy more efficiently with good cycling stability and also have the potential to replace traditional capacitors and batteries.

Many present-day batteries contain toxic materials, such as mercury, lead, and cadmium. For this reason, Mohit targets materials that are high-performing and free of environmentally harmful metals. Using

low-cost synthesis without advanced instrumentation and laboratory test condition analysis, Mohit achieved results which are comparable with contemporary research based on complicated synthesis. Additionally, his research work focuses on low-temperature synthesis of nanomaterials aiming to make the process easily accessible for quick scale up whilst also maintaining the characteristics which are required for excellent performance in energy storage systems.

The professional long-term goal of Mohit is to work towards building sustainable energy storage platforms and to develop alternative renewable energy sources such as solar power, thereby contributing to overall human development.

Research focus: synthesis of nanostructured materials for electrochemical energy storage

2018



Yauheniya SHERSHUNOVICH

Belarus

PhD Student in Economics and National Economy Management

Belarus State Economic University, Belarus

In her research, Yauheniya focuses on creating an index to assess the performance of electricity industry enterprises from the point of sustainable development. The assessment of the sustainable development of these enterprises is difficult. Firstly, the concept of "sustainable development" is new and still requires further research. Secondly, there is no existing unified set of indicators yet which assess the sustainable development of any enterprise. Besides, the sustainable development itself is complex and versatile.

Yauheniya analyses existing methodologies and indicators, which are connected with sustainable development of the energy sector. She aims to define indicators that are used in the majority of methodologies and prove that they are of crucial importance for the sustainable development of the sector. The final index will include four sub-indexes: economic, technological, social, and ecological and will represent a balanced estimation of the sustainable development of the electricity industry enterprise. The index will help to describe the current level of sustainable development in the Republic of Belarus as well as identify areas of concern.

Research focus: sustainable development of the electricity enterprises in the Republic of Belarus, green economy, waste recycling

Dr Yuli SHAN

China

PhD in Climate Change Economics

Current position: Faculty Research Fellow at the University of Groningen, the Netherlands

In his research, Yuli focuses on the fields of regional carbon emission, energy and water accounts, sustainable development, and climate change economics in China. He, furthermore, is building up an emission-socioeconomic database for all developing countries.

Yuli's home country China is the world's leading energy consumer and CO₂ emitter, considering factors such as rapid economic development and consumption growth. At the same time, China is playing a major role in global emission reduction and climate change mitigation. Yuli is developing a set of methods for composing CO₂ emissions inventories for China and its regions. He published studies that include low-carbon roadmaps for each city. An open-access dataset which provides ener-

gy-emission-socioeconomic inventories for China and its cities was established (China Emission Accounts and Datasets).

By also focusing on water accounts, he aims at analysing the Emission-Water-Nexus, which is indispensable for sustainable development. Therefore, a joint analysis of the emission, energy and water resources needs to be undertaken.

2018



Research focus: emission accounts and low-carbon development in cities

Pheladi Venda TLHATLHA

South Africa

MSc Student in Environmental Management at University of Pretoria, South Africa

Current position: Junior Environmental Consultant with the NTC Group, South Africa

Pheladi is focusing on understanding the perception of energy in disadvantaged communities and also the reduction of energy poverty. She believes clean energy should be accessible to and affordable for impoverished communities.

In South Africa, where Pheladi grew up, access to energy is challenging and limited for low-income households. She is exploring renewable energy technologies and implementable strategies to overcome these barriers. Energy security demands energy efficiency and reduced expenditure. Her approach is to take economic, social, and environmental factors into consideration. An investigation of the energy sector and the adaption of renewable energy technologies can lead to a positive

impact on human well-being, poverty reduction, and economic growth. Pheladi's interdisciplinary research targets geographical and social issues and seeks technological advancement for informal settlements, as well as sustainable alternatives.

2018



Research focus: renewable energy strategies for energy poverty alleviation

2018



Vishal TRIPATHI

India

PhD Student in Environmental Science and Technology

Banaras Hindu University, India

In his research, Vishal focuses on the soil system, namely the effect of soil pollution. He uses tolerant plant species, multi-purpose bacterial species, and various agro-residues for the bioremediation of organochlorine pesticides in order to improve the soil and nutritional quality of the agricultural produce.

Pollution is a major threat to the soil system. Contaminated soil needs to be restored in order to achieve the Sustainable Development Goals. Vishal's research is broadly focused on harnessing plant-microbe

interactions as a low-input biotechnology for the sustainable clean-up of soil sites. Whilst analysing the potential of bioenergy plants for phytoremediation of persistent organic pollutants, he is exploring the opportunities of biomass generated from phytoremediation for the production of biofuels and bioproducts. Since farmland is limited and primarily required to grow crops for an increasing global population, the use of polluted lands for bioenergy and bioproducts generation will avoid the conflict between food and fuel production. Vishal is also evaluating the plant-microbe-pollutant interactions under changing climate conditions to develop climate-resilient remediation strategies and promote the soil carbon sequestration.

Research focus: bioremediation of contaminated soils for achieving the UN Sustainable Development Goals

2018



Dr Di ZHOU

China

PhD in Environmental Law

Current position: Postdoctoral Researcher at Wuhan University, China

Di's expertise surrounds Environmental Law and mainly focuses on the legalisation and institutionalisation of sustainability. She aims to conduct research on the ecological civilisation and sustainable development in China.

Ecological civilisation is an explicit goal towards sustainable development. It points out the significance of a long-term perspective on the current climate crisis and represents another form of human civilisation, based on ecological principles. Following

this, the world is in need of major environmental shifts and a restructuring of the society. One of the systems that need to be revised is the legal system, and Di aims to advance change towards an ecological civilisation.

Di shows that, for the ecological civilisation to arise, the environmental rule of law has to cover all environmental issues arising from development rather than being fragmented and narrowed down to small pieces. In addition, she argues that sustainable development will get a solid base by improving the environmental judicial system. The access to environmental justice would be a guarantee for sustainability. Her work also covers the climate-energy policies and carbon market.

Research focus: ecological civilisation, sustainable development, and environmental justice

Govhar VALIYEVA

Azerbaijan

MSc in Environmental Policy and Management/Energy and Sustainability

Current position: Environmental specialist at the Institute for Scientific Research on Economic Reforms, Azerbaijan

Govhar's research focuses on reducing the used amount of heavy fuel and gas in Azerbaijan by implementing alternative and renewable sources of energy.

Azerbaijan is a region rich in fossil oil and gas. The majority of the electricity produced there derives from these energy sources; only a small part comes from hydroelectric power stations. Renewable and alternative energy sources account for less than 1 percent. Govhar places an emphasis on improving existing energy measures in Azerbaijan as well as on using alternative sources in neighbouring countries.

She aims to introduce new technologies to increase energy efficiency and develop the energy trade with Georgia, as this country

generates a major part of its energy from hydropower plants. She assumes that this energy trade would create additional revenues for Azerbaijan, leading to a positive impact on economic, social, and environmental processes. Furthermore, she predicts declining energy tariffs for the population. Her approach of implementing energy efficiency measures and new technologies will reduce CO₂ emissions in her home country. Govhar attempts to provide a model which can be transferred to other countries.

2018



Research focus: sustainable technology, renewable energy sources

GREEN TALENTS

2017

Applications total 602
 Application countries 95
 Winners 25



2017



Precious AKAMPUMUZA

Uganda

PhD Student in Sustainability Science, University of Tokyo, Japan

Current position: Business coordinator at the Overseas Business Section of the Japan Weather Association, Tokyo, Japan

The impact of climate change on health has, until recently, been largely overlooked. A dearth of research is especially apparent in the world's most vulnerable areas, such as East Africa. Precious intends to address this imbalance by investigating the association between climate change and infectious diseases in Uganda.

By analysing the association between extreme rainfall and temperature and the number of outpatient visits due to diarrheal diseases in Uganda, Precious will be

among the first scientists to analyse the association between climate change and infectious diseases in Uganda. Precious is stretching the limit of data availability in Uganda by leveraging smartphone technology to digitise hospital and meteorological archives. From this, she has created a unique database, to analyse diarrheal diseases in one of Uganda's most vulnerable sub-regions.

Research focus: effect of climate change on incidences of infectious diseases in Eastern Africa

Zeyad AL-SHIBAANY

Iraq

PhD Student in Mechatronics Engineering

Newcastle University, United Kingdom

Zeyad is working on the design and development of a portable medical device that will help prevent the spread of infectious diseases. The safest way to contain infectious diseases is to make sure that those who are infected do not mix with the healthy population. Currently, however, to be diagnosed, sick people, especially in poorer communities, often need to travel long distances to see a medical professional. This brings them into contact with a great deal of vulnerable people. In order to circumvent this potentially dangerous scenario, Zeyad has developed a prototype medical device that people can use in their own homes to test for infectious diseases. Results can, then, be sent to a hospital where their data can be logged.

Currently, Zeyad is a Project Officer and Research Associate in Mechatronics

(Sustainable Manufacturing and Industry 4.0) to work on the Cardiff Element of the Advanced Sustainable Manufacturing Technologies Project. For his work and experience in both academia and industry, Zeyad has been elected and registered by the Engineering Council in the United Kingdom, and he is authorised to use the title Chartered Engineer.

Research focus: medical systems engineering and mechatronics applications

2017



2017



Dr Aretha APRILIA

Indonesia

PhD in Socio-Environmental Energy Science

Current position: Business Development & Environmental Specialist at CDM Smith Europe GmbH, Indonesia

Aretha is working on an off-grid rural electrification project using renewable energy sources in Indonesia. She is also evaluating the renewable energy policy mix to encourage the growth of renewable energy penetration in the country, including off-grid rural electrification.

Over 2,500 villages in Indonesia currently have no electricity access. Aretha is analysing the impact of the country's new energy policies on the penetration of RE in the energy mix. Her second research topic

is community-based waste management and the use of municipal waste for energy production. In her studies she identifies barriers of RE and waste-to-energy. Based on her waste survey conducted in Jakarta, more than 50 percent of household waste is organic. This implies that there is a high amount of methane gas emission which could be converted to generate energy.

Aretha has received multiple prestigious recognitions for her contributions to the fields of renewable energy development including Global Center of Excellence scholarships from the Government of Japan.

Research focus: renewable energy (RE) policy mix to accelerate RE penetration and off-grid rural electrification

2017



Dr Bishnu Prasad BHATTARAI

Nepal

PhD in Energy Technology

Current position: Senior Research Scientist/Engineer at Pacific Northwest National Laboratory, United States of America

Bishnu has been working for many years on improving the grid integration of renewable energy sources through the development of various smart grid technologies. His research is primarily focused on enhancing energy security, reliability, and resiliency of integrated electrical, thermal, and transportation systems.

Bishnu is developing algorithms and system architecture to enable efficient integration of large scale integration of distributed energy resources. His algorithms regulate

energy when system stability, reliability or security is jeopardised. Multi-time-scale controllers regulate the limited amount of power generation from renewable sources during critical conditions and maintain system stability. This increases the hosting capacity of electric grids and, therefore, contributes to a higher share of green energy.

For his research and academic excellence in his graduate studies, Bishnu was awarded the Gold Medal "Nepal Bhidyaa Bhusan" from the president of Nepal.

Research focus: sustainable energy systems through integrated electrical, thermal, and transportation energy system

Katherine BERTHON

Australia

PhD Student in Designing Green Spaces for Biodiversity

RMIT University, Australia

Sustainable cities need plenty of green space; however, urban environments pose significant challenges for conservation efforts. Katherine is seeking to tackle this problem by researching how green spaces can be designed to support biodiversity enhancement and other ecosystem functions. In addition to this, she also wants to demonstrate how increased access to green space not only boosts biodiversity, but also improves the well-being of urban populations.

Katherine works as part of a collaborative team of industry representatives, members of local government, and researchers across varied scientific disciplines, to understand how to better design green spaces for people and nature to coexist in the city. Her PhD work contributes to this project by understanding the ways in which green space design influences how

invertebrates interact with and utilise plant resources. Understanding these interactions will lead to better plant choice for greening cities, but must be weighed against human needs and desires.

Katherine aims to understand which features of green spaces support biodiversity conservation objectives and to unveil whether these are the same or different features as those which support positive human health outcomes.

Research focus: designing green spaces for biodiversity

2017



Dr Rama Kant DUBEY

India

PhD in Environmental Science and Technology

Current position: Postdoctoral Researcher at Environmental Research Institute, National University of Singapore, Singapore

To meet the food demands of a rapidly growing human population, without negative effects on the ecosystem, Rama Kant is validating sustainable agro-biotechnological approaches for improving the soil and the nutritional quality of agricultural produce.

Rama Kant is focusing on the reasons for the loss of micro- and macro-nutrients, biodiversity in agricultural soil, and how plant-microbe interactions can be harnessed to improve the same. He has conducted extensive field experiments in different regions of Uttar Pradesh, India's most populated state, and investigated how climate-smart and resource conservation agro-biotechnological practices can improve the health productivity and sustainability of agroecosystems. In order

to ascertain the impact of climate change on soil and microbial respiration and microbial functional diversity, he has compared various agro-biotechnological interventions, such as the use of biochar, humicil, vermicompost, cow dung manure, sheep manure, leaf litter, and microbial inoculums, with practices like mulching, reduced tillage, and crop diversification.

2019 AMI-Young Scientist Award in the area of Environmental Microbiology by the Association of Microbiologists of India

Research focus: agricultural sustainability and restoration of degraded land in times of global warming

2017



2017



Dr Hannah HARRISON

United States of America

PhD in Ecology and Natural Resource Management

Current position: Postdoctoral Fellow at the Department of Geography, Environment, and Geomatics, University of Guelph, Canada

Hannah is developing a holistic picture of conflicts in the discourse about small-scale voluntary salmon hatcheries. She intends to identify underlying drivers of conflict for more sustainable salmon fisheries management.

Conflict over natural resources is inherently unsustainable. Such is the case for wild Atlantic salmon populations across Europe where using hatcheries as conservation

tools has created controversy. Hannah is researching solutions for more sustainable salmon conservation by comparing small-scale voluntary hatcheries with habitat improvement and restoration work, with the aim of understanding underlying drivers of conflict and identifying solutions to harmonise salmon management efforts. Specifically, she is investigating different perspectives involved in conflicts over voluntary hatcheries, which are thought to have a damaging impact on salmon population genetics and survival. Hannah is exchanging knowledge with fishery ecologists, anglers, aquaculture experts, and policy makers, and by evaluating case studies in different countries, she is bringing clarity to the issue.

Research focus: researching innovative cultivation techniques for sustainable production of endangered freshwater fish species in Europe

2017



Sea Jin KIM

Republic of Korea

PhD Student in Environmental Science and Climate Change

Korea University, Republic of Korea

Sea Jin is studying disaster risk in order to determine better land management strategies and promote sustainability. With natural disasters posing greater threats to people around the world, her research in developing disaster-related indicators and forecasting threats, such as forest fires, will be of immense value to vulnerable populations.

Sea Jin aims at conducting research using Geographic Information Systems and satellite data to provide decision makers at a global level with the information they need to combat climate problems and pre-

vent the disastrous outcomes that climate problems pose.

Sea Jin examined the impact of climate change on the Andong-dam basin in great detail and has classified climate zones. In doing so, she has made great progress in establishing the appropriate spatial models for assessing hydro-meteorological ecosystems. Presently, she is developing disaster-related indicators in order to contribute to assessing the progress of Sustainable Development Goals implementation.

- 2019 Korea-ERC Researchers' Exchange Programme grant, Ministry of Science, ICT and Future Planning of the Republic of Korea
- 2019 Guest researcher at the research group "Global Resource Use", Institute for Ecological Economics, Vienna University of Economics and Business, Austria

Research focus: disaster risk management, disaster risk reduction, climate change, forest fire, extreme precipitation

Anup K C

Nepal

PhD Student in Park Conservation and Ecotourism, Clemson University, United States of America

Current position: Assistant Professor of Environmental Science, Tribhuvan University, Nepal

Anup is using his training in both Environmental Science and Economics to support the ecotourism sector in Nepal. In his PhD research project, he is assessing opportunities to promote ecotourism in the country by benefiting local indigenous communities and conserving wildlife. He is always positive about incorporating aspects of indigenous culture and best practices from elsewhere in the world to enhance the ecotourism sector of Nepal. Anup believes that developing the ecotourism sector is one of the fastest ways to foster the economic development of the country.

Beside his PhD research project in the United States, he is regularly involved in research related to environment, climate change, and ecotourism. He is also motivating his Nepalese students and helping in their research projects.

2017



Research focus: green economy, ecotourism, community forest, climate change

Ellin LEDE

Australia

PhD Student in Environmental Science

Tyndall Centre for Climate Change Research, United Kingdom

Ellin is investigating how we can effectively apply behavioural insights to incentivise water conservation behaviour and increase support for water-related climate change mitigation strategies. Ensuring a sustainable supply of water will require novel strategies, which will include engaging with end-users to incentivise a reduction in overall water demand. In collaboration with research partners Ellin designs and pilots evidence-based approaches informed by behavioural science to encourage water conservation behaviour in water scarce regions in the United Kingdom.

Ellin has previously worked with different levels of government (the National Government of Vietnam, the City of Paris, France) as well as within inter-governmental organisations and research teams within the climate change and sustainability sphere.

2017



Research focus: developing innovative and evidence-based approaches to incentivise water conservation in water-scarce regions in the United Kingdom

2017



Dr Megan LUKAS-SITHOLE

South Africa

PhD in Environmental and Geographical Science

Current position: Postdoctoral Researcher at the African Climate & Development Initiative (ACDI), University of Cape Town, South Africa

For Megan, the everyday practices of ordinary people that have sustainable outcomes should be recognised in cities of the global south. She identified self-motivated individuals and NGOs promoting sustainability in an impoverished township in Cape Town. She hopes to use the examples of their practices to inform decision-makers about what is required to achieve sustainability and improve well-being within townships.

Megan's research examines the often unintentional environmental engagement and everyday lives of residents living in Nyanga, a poor township in Cape Town. Given the local history, the community itself was poorly designed, and a sustainable lifestyle is often difficult. Megan's findings reveal that connections to and imaginaries of home and home-making practices shape the sustainable lifestyles of some people living in Nyanga.

Currently, Megan is working on the IPCC's 6th Assessment Report as a chapter scientist. It's a postdoc position she got through the African Climate & Development Initiative (ACDI) at the University of Cape Town.

Research focus: human connection to the environment in an under-resourced township setting regarding everyday practices that have sustainable effects

2017



Dr Gian Powell B. MARQUEZ

Philippines

EngD in Aerospace Engineering

Current position: Assistant Professor at Ritsumeikan University, Japan

Biogas production offers an opportunity for a reliable energy supply for remote coastal communities. However, the resulting waste sludge poses a risk to the ecosystem. Powell is investigating ways of making biogas production more sustainable. Coastal villagers in the Philippines are surrounded by abundant marine biomass, and Powell is working on efficiently tapping into this supply, without damaging the environment.

Powell is researching the utilisation of thalassic conditions in anaerobic digestion for biogas production. He hopes his

findings will alleviate the difficult living conditions of people in isolated island communities by providing low-cost energy sources. Powell's aim is to determine a bio-refinery concept using marine biomass and microorganisms, wherein a sustainable thalassic biogas system is integrated with wastewater treatment and macro-algae/micro-algae farming technology.

Currently he is transitioning his research to Futures Studies in seaweed biomass economy in the Asia-Pacific region. Besides Powell is part of the newly opened College of Global Liberal Arts at the Ritsumeikan University, where he teaches and facilitates innovative sustainable solutions for global issues.

Research focus: anaerobic digestion, thalassic biogas technology, and recovery systems

Dr Liv LUNDBERG

Sweden

PhD in Energy and Environment

Current position: Researcher in Energy System Analysis, RISE Research Institutes of Sweden, Sweden

Liv is focused on energy system transitions towards high levels of solar and wind power penetration, working with system modelling and policy analysis. When large societal transformations such as decarbonisation of the energy system take place, it is difficult to use previous knowledge for predicting future outcomes. While computer models can offer an explanation and are crucial for policy analysis, traditional models fail to account for non-rational behaviour and actor interactions and are often based on assumptions of optimisation or economic equilibrium. Liv is developing models that, by using methods from the field of complex systems, behavioural economics, and game theory, better account for how the behaviour of individual actors, the interaction between them and policies are a part of shaping the system.

Following the research stay at the Hochschule für Politik in Munich, Liv worked for the Swedish Government as an analyst and policy expert in an investigation on new policies for biogas. The global sustainability challenges are extremely complex, meaning that consequences of actions/policies intended to mitigate problems are hard to foresee. As a physicist and engineer who has also studied Industrial Ecology, Economics, and Psychology, Liv is well placed to take on this challenge.

2017



Research focus: transitions in energy systems connected to climate change mitigation policies

Olga MIRONENKO

Russian Federation

MSc in Environmental Science

Current position: Head of Waste Management, Leroy Merlin and Co-founder of Taiga, Russian Federation

As founder of a marine plastics recycling start-up, Olga aims to make production and consumption in today's world more sustainable. With her past research projects, she brings expertise in marine pollution into her business of reversing pollution in the seas by rethinking the way we produce and consume.

As a Master's student she focused on marine anthropogenic pollution and investigated the interactions of marine biota with (micro-)plastics. For her thesis Olga conducted research into marine debris on the Commander Islands, mapping areas of pollution around the islands and looking into the potential of recycling using renewable energy sources. This investigation led to her setting up "Holy Jelly", an initiative aimed at addressing the issue of plastics in oceans and their impact on marine life, by

retrieving plastic from the sea and turning it into regrind. In the United Nations Sustainable Development Solutions Network Youth Report of 2017 the initiative was included as one of the 50 ground-breaking projects and ideas for sustainable development. Her second start-up "Taiga" was awarded best environmental start-up of 2016 by the city government of Moscow. Taiga focuses on greening the business, including restaurant and event industries, developing environmental games and raising public awareness of environmental issues.

2017



Research focus: marine anthropogenic pollution, zero waste production and consumption

2017



Dr Enayat A. MOALLEMI

Iran/Australia

PhD in Environmental Policy

Current position: Lead Researcher at the Local SDGs Programme, School of Life and Environmental Sciences, Deakin University, Australia

Enayat's research is focused on computational and participatory approaches for modelling socio-ecological systems under the uncertainties of future global change. His research is applied to a range of areas, such as renewable energies, sustainable mobility, and the Sustainable Development Goals, aiming to advance robust decision-making and adaptive planning. Enayat obtained his PhD from the University of Melbourne, where he worked

on model-based energy policy analysis. In his PhD, Enayat developed a theoretical transition framework and an exploratory system dynamics model for investigating future energy transition pathways under uncertainty. Enayat was a visiting researcher at the Faculty of Technology, Policy and Management, Delft University of Technology (the Netherlands) in 2016 and at the Fraunhofer Institute for Systems and Innovation Research in Karlsruhe (Germany) in 2018 as a part of his Green Talent research collaboration.

Research focus: complex systems modelling, robust decision analysis, coupled natural-human systems, uncertainty analysis

2017



Eyram NORGBEY

Ghana

PhD Student in Environmental Science and Engineering

Hohai University, China

Eyram is seeking to lower the world's dependency on crude oil by inserting a substitute material into asphalt. He has identified lignin as an ideal replacement as it will lower costs, decrease environmental damage, and reduce the impact of flooding. Asphalt is the world's most important binder for road construction; however, its use poses significant problems.

Eyram's research focuses on using industrial waste material to partially replace asphalt binder to make sustainable and cheaper road surfaces, to help reduce

the dependence on oil products. In his project, he is modifying asphalt with lignin, a sustainable, renewable, and environmentally friendly waste biomass. Lignin is readily available, as a by-product obtained from the paper-making or corn industry. Asphalt modification with lignin will produce cheaper, sustainable, and environmentally friendly composite material for sustainable permeable roads construction development.

2019 Hai Yun Fenghua Top Ten Award, Hohai University, China

Research focus: use of industrial waste lignin as a partial replacement of asphalt binder for sustainable road construction

Ahmed Zakaria Hafez MOHAMED

Egypt

PhD Student in Civil Engineering

University of Nottingham, United Kingdom

Ahmed is researching ways to improve the efficiency of solar-powered engines. He has worked on boosting the water-pumping capability of Stirling engines in order to increase access to water in remote rural areas of his country, Egypt.

Ahmed has identified a way to solve the problem of water scarcity in remote areas of impoverished countries. His work involves increasing the efficiency of water pumps by improving solar power technol-

ogy. Remote communities often rely on diesel generators, and Ahmed hopes his research can be used to both improve access to water and decrease dependence on fossil fuel. Ahmed's project provides the complete design and demonstration of a 10 horsepower laboratory prototype engine with a solar dish. The solar dish system is designed to follow the sun using a new technique for solar tracking systems, to maximise the amount of energy that is collected.

Research focus: energy saving, energy systems analysis, and sustainable technology

2017



Chukwuebuka Christopher OKOLO

Nigeria

PhD Student in Soil Science

Mekelle University, Ethiopia

Unsustainable agricultural practices in Sub-Saharan Africa are both contributing towards climate change and exacerbating its impact on local populations. Chukwuebuka's research interest centres on the accurate quantification of soil carbon in relation to climate change. He aims to provide framework information towards the understanding of carbon capture, distribution, and transfer. Soil carbon is vital for supporting ecosystems and improving soil productivity, and its effective management boosts sustainable use. By increasing the levels of soil organic carbon in degraded soils, CO₂ emissions will be sequestered and water capture enhanced.

Chukwuebuka is now adopting a climate analogues approach to his research. This term refers to the comparison of sites or conditions with statistical similarity, meaning his research will have a global scope. Most recently, he is focusing on effective and accurate measurement of greenhouse gases down the profile under different cropping systems with labelled tracers.

2020 CLIFF-GRADS Award
2019 African-German Network of Excellence in Science (AGNES) Mobility Grant Award

Research focus: soil carbon sequestration under different land uses in relation to climate following land use conversion in northern Ethiopia

2017



2017



Dr Kamila POPE

Brazil

PhD in Law, Politics, and Society

Current position: Visiting Researcher at Leibniz Centre for Agricultural Landscape Research (ZALF), Germany

Kamila is aiming to overcome planned obsolescence by raising awareness of the problem. Her research focuses on finding political solutions and appropriate legal regulations.

Planned obsolescence is the artificial reduction of the durability of consumer goods to induce consumers to purchase substitute products before they would need to and, therefore, more often than they normally would. Societal trends often dictate when

products become outdated, as new designs and update versions emerge. The practice of planned obsolescence contributes to the overexploitation of natural resources and the overproduction of waste. In her research, Kamila is weighing up innovative strategies that can address these challenges from multiple angles, including business, design, and technology. She is focusing on political and judicial solutions because of their authority in influencing society.

2019 Best PhD Thesis in Law in Brazil, awarded by CAPES (Coordination for the Improvement of Higher Education Personnel), Brazilian Ministry of Education

Research focus: planned obsolescence, environmental governance, waste management, socio-ecological justice, ecological law and policies

2017



Dr Ravindra RATTAN

Fiji

PhD in Geography (Climate Change/Sustainable Livelihood)

Current position: Researcher in Geography (Climate Change and Natural Disasters), Institute for Advanced Sustainability Studies Potsdam, Germany

Ravindra is a social environmental scientist and has dedicated his academic career to the study of climate change and natural disasters in the Asia-Pacific region and to the understanding of coping strategies. His research is contributing towards improving the relationship between people and the ecosystem around them. Ravindra is researching on science, sustainability, and spirituality, and the culture of disasters in the Indian Himalayan Region, looking at

the impacts of historical climate change and natural disasters on man-kind and ecosystem. He particularly focuses on Asia-Pacific countries, which have been victim to an increasing number of natural disasters over recent decades.

His research also focuses on climate change and clean energy transitions in the Asia-Pacific region. He is investigating historical and contemporary natural hazards and disasters and their impacts on ecosystems, as well as vulnerability and resilience patterns of effected communities. Ravindra is aiming to improve awareness through a social marketing application by delivering public motivation lectures on sustainability.

Research focus: science, sustainability, and spirituality and the humanitarian medical response to natural disasters and climate change in the Asia-Pacific region

Dr Kashif RASOOL

Pakistan

PhD in Environmental and Energy Engineering

Current position: Postdoctoral Researcher at Qatar Environment and Energy Research Institute, Hamad Bin Khalifa University, Qatar

Kashif is taking on two of the world's most pressing environmental concerns: water contamination and water security. He is developing innovative methods for extracting contaminants from industrial wastewater, so that it can be safely and sustainably returned to the freshwater supply. He is focusing on the removal of organics, heavy metals, nutrients, and emerging micro-pollutants from a variety of wastewater streams, coupled with renewable bio-energy production.

with the more extreme weather conditions of the Arabian Gulf, these advanced membranes enable ultrafast water permeation, while maintaining good mechanical properties – crucial factors for advancing sustainable water purification and desalination technologies.

Kashif is working on the identification, selection, and scientific application of water quality, and sustainable innovative water/wastewater treatment for further water reuse strategies. He tested anti-biofouling membranes for water desalination and biological water treatment. Designed to cope

2017



Research focus: environmental remediation, water and wastewater treatment

Pratiksha SRIVASTAVA

India

PhD Student in Environmental Engineering

University of Tasmania, Australia

Pratiksha has developed a unique piece of technology to enhance constructed wetlands technology in order to provide more efficient water sanitation in rural communities. Clean water and sanitation stand out as being among the most important aims of the Sustainable Development Goals (SDG).

Pratiksha is enhancing constructed wetlands technology which is able to effectively sanitise water without chemical or mechanical requirements. However, processes are extremely slow and a large land-use footprint is required. To solve the problem of inefficiency, Pratiksha has developed a novel Integrated Constructed Wetlands-Microbial Fuel Cell. This device accelerates anaerobic processes and enables constructed wetlands to perform at twice the speed. The land-use footprint

requirement is also lower and electricity can even be generated.

In addition to this, Pratiksha has designed and built a unique zero discharge water-recyclable community toilet, which has been integrated with constructed wetlands and innovative septic tanks.

2017 Tasmania Graduate Research Scholarship
2017 University Graduate Top-up Scholarship

Research focus: anaerobic treatment

2017



2017



Dr Attila TÓTH

Slovakia

PhD in Landscape Architecture

Current position: Assistant Professor of Landscape Architecture at the Slovak University of Agriculture, Slovakia

Attila's research is geared towards transforming cities into sustainable and resilient urban landscapes for a liveable and inclusive Europe. He is studying the environmental effectiveness of green infrastructure and nature-based solutions.

As a professional landscape architect, Attila aims to solve urban and climatic challenges in urban conglomerates by building with nature. Urban greenery, especially trees in streets, squares and green spaces, is usually the first port of call when looking

to boost oxygen, wildlife, and the sequestration of carbon. The term, however, also includes anything that helps to absorb, delay, and treat stormwater and mitigate flooding and pollution downstream. Urban greening also benefits human health through noise and dust reduction, clean air and spaces for well-being. Green infrastructure will play a key role in achieving the EU's policy objectives for healthy urban ecosystems.

Research focus: implementation of green infrastructure and its ecosystem services as nature-based solutions in sustainable urban and rural development

2017



Dr Linjun XIE

China

PhD in Urban Sustainable Development

Current position: Postdoctoral Research Associate in the Department of Geography at Durham University, United Kingdom

Linjun's research focuses on environmental governance and sustainable urbanisation. During her PhD, she contributed to the first systematic comparative analyses of the development of green economies between EU and China, in a collaborative research project that involved China, Germany, the United Kingdom, the Netherlands, and France. The project was focused on smart city and eco-city initiatives, and it contributed to identify the mechanisms through which societal innovations emerge in different socio-economic contexts.

Linjun has conducted extensive urban sustainability research on aspects such as sustainable transportation, green infrastructure development, and eco-city and smart-city initiatives. She is currently a postdoctoral researcher on an EU Horizon 2020 research project NATUREVATION on innovation and governance of nature-based solutions. Her research focuses on the urban biodiversity governance and the mainstreaming of nature-based solutions.

Research focus: environmental governance and sustainable urbanisation

Jayati TRIVEDI

India

PhD Student in Engineering

Current position: Senior Scientist at Indian Institute of Petroleum, Council of Scientific and Industrial Research and Assistant Professor at Academy of Scientific and Innovative Research, India

Jayati seeks to make energy production sustainable and cleaner through interdisciplinary research in Biology, Chemistry, Engineering, and Agricultural Sciences. Using clean sources of energy is a vital step towards a more sustainable economy. In order to contribute to this effort, Jayati is researching energy generation from renewable lignocellulosic biomass. Instead of using environmentally harsh catalysts and solvents, her emphasis is on using environmentally friendly green enzymes for the synthesis of products from biomass feedstock.

Currently, Jayati is leading a project on the development of an energy-efficient process for producing biodiesel at room temperature. This project involves spreading

awareness in the society about the health hazards caused by consuming used cooking oil and further channelling this waste stream for the production of biodiesel.

Jayati invented a novel biotechnological process for the production of L(+) Lactic Acid from low cost lignocellulosic biomass, based on which the United States patent was granted in 2018.

2017



Research focus: production of green fuels and chemicals from biomass-derived feedstock

GREEN TALENTS

2016

Applications total 757
 Application countries 91
 Winners 25



2016



Dr Abubakari AHMED

Ghana

PhD in Sustainability Science

Current position: Lecturer at the University for Development Studies, Ghana

Abubakari is currently a lecturer at the Department of Planning of the University for Development Studies (UDS), Ghana. Prior to joining UDS, he was a postdoc at the University of Trier in Germany and a recipient of a Humboldt Research Fellowship. His research during his PhD assessed the sustainability of large-scale land acquisitions for biofuel in Ghana by examining the social, economic, and environmental impacts of various feedstock options used in biofuel production. Abubakari's current research focus is on the water-energy-food

nexus in African cities, assessing the resource interdependencies at the household level.

Abubakari has won several different awards, including the United Nations University Junior Fellowship, the Tertiary Education Scholarship Trust for Africa, Humboldt Research Fellowship, African Peace Network Grant of the Social Science Research Council, and the Land Matrix Ghana Data Campaign.

Research focus: water-energy-food nexus in African cities

Melissa ATWELL

Trinidad and Tobago

PhD Student in Environmental Science, Soil Science, Geography, and Sustainable Natural Resource Management

University of the West Indies, Trinidad and Tobago

In her research, Melissa aims to increase knowledge on soil ecosystem services under different land uses in humid tropical savannahs. Soil ecosystems provide multiple benefits to society including nutrient cycling, water relations, physical stability, and habitats. The preservation of these ecosystems is essential. Without integrating ecological conservation and sustainability into land use planning activities, there will be a decline in human well-being as a result of reduced food, fresh water, livelihood security, and greater economic losses due to natural disasters. Melissa's objective is to help prevent soil degradation, to advise decision makers in tropical regions and small island states, and to predict future trends to achieve sustainable adaptation strategies to climate change.

Due to her outstanding academic performance, she received a research grant from her university. She also won 3rd prize for her oral presentation on wetland soils at the ASA-CSSA-SSSA Annual General Meeting in the United States and received 1st place for her poster presentation at the research symposium for the International Year of Biodiversity in Trinidad and Tobago. She also received an Erasmus+ mobility scholarship to conduct research at the University of Graz, Austria.

2016



Research focus: sustainable management of soil ecosystem services and its resilience in the face of increased population pressures and climate change

2016



Dr Hèou Maléki BADJANA

Togo

PhD in Hydrology: Climate Change and Water Resources

Current position: Postdoctoral Research Assistant in Hydrological Modelling at the University of Reading, United Kingdom

Hèou currently works at the Department of Geography and Environmental Science in the LANDWISE (LAND management in lowland catchments for integrated flood risk reduction) project. As a research associate at the University of Lomé, he also worked as a volunteer hydrologist for the Red Cross Red Crescent Climate Centre in the Netherlands and as a consultant in sustainable wetland management for the Ministry of Environment and Forest Resources, Togo. In his research, Hèou examines land use change and hydrologic

processes in river basins in West Africa to develop strategies for sustainable natural resource management. Using statistical, analytical, and observational techniques, he is able to chart hydro-climatic variables and to make predictions about how these might change over time. He also uses remote sensing and GIS techniques to assess the impacts of land use changes on landscapes. Hèou conducts socio-economic surveys as a means of integrating the knowledge of local populations, an important component of integrated natural resource management.

In 2014, he was awarded a research grant from the International Foundation for Sciences in Switzerland along with a full PhD scholarship from WASCAL (West African Science Service Centre on Climate Change and Adapted Land Use).

Research focus: assessing hydro-climatic and land use changes in order to develop strategies that allow for more integrated land and water resource management

2016



Dr Alejandra María CARMONA DUQUE

Colombia

PhD in Water Resources Engineering

Current position: Researcher at Constructora Concreto, Colombia

Over the past years Alejandra has been studying climate change and climate variability in tropical South America with particular emphasis on Colombia and the Amazon River basin. Throughout her research career, she has worked with engineers, biologists and ecologists towards understanding and modelling hydrological variables and predicting their fluctuations at different time scales. She has, thus, helped to update and strengthen evidence for natural climate variability and possible signs of climate change in Colombia and the Amazon River basin.

One of her goals is to contribute to the design of adaptation strategies and programmes that mitigate the effects of climate change through their orientation towards more sustainable and eco-friendly practices.

Alejandra has received a scholarship for her doctoral studies from Colciencias and a summa cum laude distinction for her PhD dissertation. In addition, she has also worked as an adjunct professor, teaching hydrology to undergraduate students.

Research focus: climate change and climate variability in tropical South America

Dr Miroslav BRUMOVSKÝ

Czech Republic

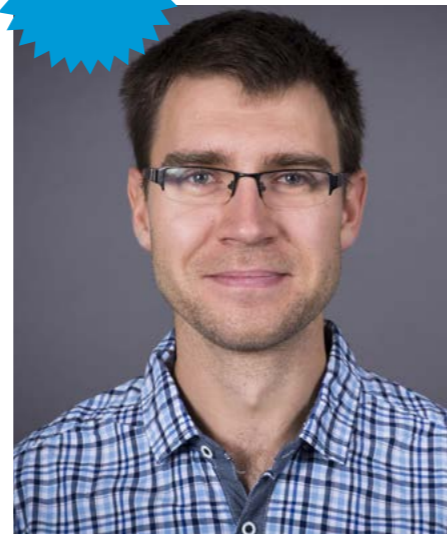
PhD in Environmental Chemistry

Current position: Postdoctoral Scholar in Environmental Chemistry at Centre for Microbiology and Environmental Systems Science, University of Vienna, Austria, and Regional Centre of Advanced Technologies and Materials, Palacký University Olomouc, Czech Republic

Miroslav's research activities focus on the study of the fate of anthropogenic contaminants in environmental systems and the development of new approaches for their removal. Currently, Miroslav works as Postdoctoral Scholar at the University of Vienna and at the Palacký University Olomouc. He is investigating the removal of groundwater contaminants using advanced nanoscale zerovalent iron (nZVI) particles. nZVI particles attract extensive attention for contaminant removal due to their large specific surface area, superior reactivity, easy and flexible in-situ applicability, and low environmental risks associated with their application.

Miroslav has gained international experience in Norway, the Czech Republic, Italy, and Austria. He considers himself a member of the generation that is responsible for designing green solutions for a more sustainable future.

2016



Research focus: removal of chlorinated hydrocarbons and chromium (VI) using advanced nanoscale zerovalent iron particles

Dr Shamik CHOWDHURY

India

PhD in Environmental Engineering

Current position: Assistant Professor at the School of Environmental Science and Engineering at the Indian Institute of Technology Kharagpur, India

Shamik's interdisciplinary research combines urban sustainability, resource efficiency, cleaner production, and eco-innovation. His objective is to create green technologies based on renewable feedstocks in order to promote more sustainable city life. In his doctoral research, Shamik focused on the development and application of novel 3D graphene monoliths (GMs) to promote economically viable green technologies. He attempted to improve the quality of urban living through the application of 3D graphene monoliths in smart devices. One of his major accomplishments was the production of high quality graphene in large quantities from sustainable precursors.

Shamik has received numerous awards for his scientific achievements, including the Sustainable Technology Award in 2015 for his research on carbon capture using innovative absorbents from the Institution of Chemical Engineers, Singapore. He was also granted the President's Graduate Fellowship by the National University of Singapore for his doctoral study and research.

2016



Research focus: green synthesis of 2D nanomaterials and their self-assembly into advanced 3D macrostructures for sustainable urban development

2016



Marina DEMARIA VENÂNCIO

Brazil

PhD Student in Law, Human and Ecological Rights

Universidade Federal de Santa Catarina, Brazil

Marina's doctoral research addresses the interconnection between the human right to food and agroecology, focusing on Brazilian food and agroecological public policies. Her main goal includes reviewing Brazilian environmental legislation in light of the new paradigm set by agroecology and food security in terms of organic and ecological production. Marina believes that one of the main contributions she has provided to sustainability research is the promotion of the exchange between law and agroecology in Brazil, raising awareness about relevant issues.

Currently, Marina is also an international consultant at the Food and Agriculture Organisation of the United Nations in Rome. She is working for the Climate, Biodiversity, Land and Water Department, at the Biodiversity Mainstreaming Platform, providing technical policy support to the Platform's work on the integration of biodiversity across agricultural sectors and engagement in the Convention on Biological Diversity's processes.

- 2019 Country Representative for the Young Professionals for Agricultural Development (YPARD)
- 2018 Junior Deputy Chair of the International Union for Conservation of Nature World Commission on Environmental Law Climate Change Specialist Group (IUCN WCEL ECG)

Research focus: climate change, agriculture, and food systems in the anthropocene

2016



Dr Jesús ESTEBAN SERRANO

Spain

PhD in Chemical Engineering

Current position: Postdoctoral Researcher at Max Planck Institute for Chemical Energy Conversion, Germany

Jesús undertook his doctoral studies on the kinetics of reactions for the chemical valorisation of glycerol to obtain fuel additives and green solvents at the Complutense University of Madrid. In 2015, he joined the University of Birmingham and left for his Green Talents research stay at the Technical University of Dortmund in 2017. In 2018, he joined the Max Planck Institute for Chemical Energy Conversion (MPI-CEC) in Mülheim an der Ruhr.

Jesús' current activities relate to the sustainable production of chemicals from substrates of renewable origin employing multiphase strategies. One example is the production of 5-hydroxymethylfurfural and furfural (chemical intermediates to fuel additives and solvents) from lignocellulose derived sugars.

- 2019 Highlighted as outstanding chemist representing Germanium in IUPAC's and IYCN's Periodic Table of Younger Chemists
- 2018 Chemical Abstracts Service (CAS) SciFinder Future Leaders Award
- 2018 Excellence Award in Chemical Reaction Engineering by the European Federation of Chemical Engineering for his PhD thesis

Research focus: catalytic valorisation of renewable chemicals to obtain sustainable value-added products

Emily ELHACHAM

Israel

MSc in Chemistry

Current position: Research Associate in Chemistry at Tel Aviv University, Israel

Emily is a scientist in the areas of Chemistry, Nanotechnology, and Geoscience. Her work involves the development of sensing and detection technologies with a focus on remote sensing and in-situ nanosystems. In the age of urbanisation, it is essential to find solutions to the threats that are putting the whole global ecosystem in danger. One of the main consequences of urbanisation has been pollution. Emily believes that an interdisciplinary approach is necessary in order to better address the current issues with regard to pollution monitoring.

Her past experience includes several international awards, like the Stockholm Junior Water Prize in Sweden and the Research Science Institute Fellowship in the United States. She worked as a visiting researcher in leading institutions, including the California Institute of Technology.

- 2019 Audi Environmental Foundation Scholarship for the One Young World Summit
- 2017 Forbes 30Under30 List Israel

Over the past years, she has been developing and using monitoring and detection systems from nanosystems to satellite remote sensing. Emily has applied those systems to address and further investigate water and air pollution as well as new aspects of molecule detection.

Research focus: developing and using sensing technologies and systems

2016



Dr Wasif FAROOQ

Saudi Arabia

PhD in Energy and Environmental Engineering

Current position: Assistant Professor at King Fahd University of Petroleum and Mineral (KFUPM), Saudi Arabia

Wasif has a master's degree and a PhD from the Department of Chemical and Biomolecular Engineering at Korea Advanced Institute of Science and Technology (KAIST), Republic of Korea. Since 2015, he has worked as an assistant professor in the department of Chemical Engineering at the National University for Science and Technology (NUST) in Pakistan. Wasif uses his knowledge of micro-algal biotechnology to reduce the negative environmental effects of using fossil fuels in industrial processes in his home country of Pakistan. His research focuses on creating more energy-efficient mechanisms for carbon capture and storage (CCS) by applying his knowledge of algal biotechnology based carbon capture (ABC). His research in improving and implementing the ABC

process is making it an increasingly viable option for cleaner energy in Pakistan.

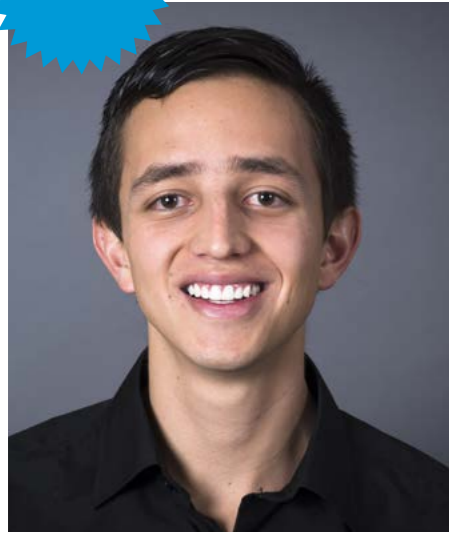
Wasif holds two patents for his unique methods in harvesting green algae and producing high-energy biodiesel. He is currently working on green synthesis of chemicals from biomass through electrochemical engineering and microbiologically influenced corrosion (MIC) in offshore systems.

Research focus: integration of micro-algal biotechnology with fossil fuel based power plants for improved CO₂ capture and biofuel and green chemical synthesis

2016



2016



Carlos Andrés GARCÍA VELÁSQUEZ

Colombia

PhD Student in Sustainability of Biobased Materials

Aachen-Maastricht Institute for Biobased Materials, Maastricht University, the Netherlands

With a scientific background in Renewable Energy, Engineering, and Sustainable Technology, Carlos is focusing on hydrogen production using biomass through gasification and dark fermentation. He is evaluating different alternatives to supply energy in rural areas in Colombia not connected to the electricity supplies of urban areas. By using renewable resources such as forest and agriculture residues, Carlos aims to provide an added value to these wastes, to reduce the environmental impact of using non-renewable energy sources

for electricity generation, and to improve the quality of life for inhabitants of these regions. He investigated different technologies. His objective was to evaluate gasification and dark fermentation systems in non-interconnected zones using lignocellulosic residues from different agro-industrial supply chains (such as pine, sugarcane bagasse, rice husk, and coffee cut-stems). The goal is to produce enough energy for daily life in Colombia's rural communities.

- 2019 Young Scientist in the International Institute of Applied Science Analysis within the Young Scientist Summer Programme
- 2015 chosen for the programme of Young Researchers from Colciencias in Colombia

Research focus: development of decision-support tools for the accounting of scope 3 (LCA) emissions into the value chain of biomass (first- and second-generation) to produce bioplastics

2016



Darnel HARRIS

Canada

MA in Environmental Studies

Current position: Operations Planner at Parkdale's Neighbourhood Land Trust in Toronto and Visiting Scholar at the City Institute at York University, Canada

Universally, sustainable development aims to meet the needs of the present without compromising the ability of future generations to meet their own. The concept 'just sustainabilities' involves the full integration of social justice and sustainability. Darnel's research embraced this concept, focusing on planning, education and design for 'just sustainabilities'. He assessed the processes, designs, and policies that are capable of generating social change through popular education, capacity building, and sustain-

able urban design in diverse communities. Darnel studied inclusive public engagement as a way of building community identity. He focused his work on the potential for bike usage to become widely used and socially acceptable in Toronto's suburban Black Creek area. His project involved a comparative analysis of six global cities, which had undertaken extensive and equitable low carbon mobility projects. His current research focus explores cycle logistics and the regulations and designs needed to make it a feasible, practical, and cost-effective option across Canada and Mexico.

Darnel has received several awards for his work, including the Tom Arnold Scholarship, TD Go Green Challenge and Canadian Urban Institute NextGen Award.

Research focus: green infrastructure installations supporting goals of social equity and equal opportunity, low speed mobility devices and cycle logistics feasibility and regulations

Dr Brett HALLAM

Australia

PhD in Silicon Photovoltaics

Current position: Associate Professor in Photovoltaic Engineering, University of New South Wales, Australia

With an academic background in Physics, Oceanography, and PV Engineering, Brett completed his PhD at the University of New South Wales (UNSW) in Australia focusing on high efficiency laser-doped silicon solar cells with advanced hydrogenation. He is an associate professor at UNSW supported by the Australian Research Council (ARC) and the Australian Renewable Energy Agency (ARENA) and is also research director of ARENA Crystalline Silicon PV Projects at UNSW. Brett's research focuses on defect engineering methods to avoid the detrimental effects caused by defects in silicon solar cells, to boost solar cell performance and reduce cost, while also lowering greenhouse gas emissions and improving the utilisation of resources used for solar cell fabrication. Throughout his academic career, he has patented multiple technologies.

- 2018 Australian Museum Eureka Prize finalist for the Emerging Leader in Science
- 2017 Discovery Early Career Researcher Award; J. G. Russell Award; Award for Energy Innovation in New South Wales; and NSW Premier Prize for Science and Engineering
- 2016 Ulrich Gösele Young Scientist Award
- 2015 finalist in the Junior Einstein Award from SolarWorld Innovations GmbH in Germany

2016



Research focus: advanced hydrogenation for silicon solar cells

Dr Rachel KELLY

Ireland

PhD in Marine Space Social Licence

Current position: Marine socioecologist at Centre for Marine Socioecology, University of Tasmania, Australia

Rachels' research focuses on improving community knowledge and engagement with the ocean, using approaches such as citizen science, social licence, and improving ocean literacy. With her cross-disciplinary approach, Rachel positions the community as a key stakeholder of the earth's oceanic environments and promotes collaborative exchange across disciplines between diverse, 'conflicting' groups. Her objective is to investigate diverse perspectives about the ocean and the uses that exist within the community in order to develop methods for influencing them by applying engagement techniques, including citizen science. As the UN Decade of the Ocean Science for Sustainable Development (2021-2030) fast approaches, Rachel's work is increasingly focused on connecting people to the

ocean by improving understanding and ocean literacy, and increasing community involvement in decision-making and conservation.

- 2019 University of Tasmania's College of Science and Engineering's Outstanding PhD Candidate Award
- 2018 Commonwealth Scientific and Industrial Research Organisation (CSIRO) Australia Student Recognition Award for Excellence

2016



Research focus: social licence of marine conservation (ocean literacy, citizen science, community engagement, etc.)

2016



Dr Elizabeth LAW

Australia

PhD in Environmental Science and Applied Economics

Current position: Postdoctoral Researcher, Norwegian Institute for Nature Research (NINA), Norway

Landscapes today are faced with manifold pressures, such as providing food, fibre, biofuels, and water, conserving the remaining habitat for flora and fauna, and mitigating the effects of climate change. In her research, Elizabeth aims to explore how landscapes and wildlife can be sustainably managed; to both capitalise on and enhance their multifunctional capacity; and to provide outcomes that are effective, efficient, and equitable for all stakeholders. She tackles this problem from a collaborative, interdisciplinary approach

that includes case studies from around the world and combines recent developments in causal inference, conservation science, ethics, simulation modelling, and multi-criteria optimisation.

Elizabeth actively collaborates with several international research groups, including that of Humboldt University. She aims for exceptional research that contributes to the effective, efficient, ethical, and sustainable management of socio-ecological landscapes, and wants to continue developing her collaborative and interdisciplinary research track.

Research focus: understanding unavoidable trade-offs between environment, economics, and ethics in bio-diverse production landscapes

2016



Dr Musaida Mercy MANYUCHI

Zimbabwe

PhD in Chemical Engineering

Current position: Director for Research, Value Addition and Beneficiation in the Ministry of Mines and Mining Development, Zimbabwe and Visiting Associate Professor at the University of Johannesburg, South Africa

Mercy studies Sustainability, focusing on the water-energy-food nexus. She founded SustainableTech, a green technology company, and also worked as a researcher, lecturer, and head of department at the Harare Institute of Technology where she focused on harnessing energy from waste biomass.

Aiming at creating a sustainable power supply for communities in Sub-Saharan Africa, Mercy is currently researching options for using charcoal material as a sustainable power source in African communities by producing bio-coal from charcoal ashes. A process is being developed to find out whether the bio-coal produced by briquetting from charcoal fines could act as a solid fuel for cooking purposes and be used as a bio-adsorbent during wastewater treatment, and whether the charcoal ash from cooking could be applied as a bio-fertilizer.

Mercy has registered patents, utility models and trademarks.

Research focus: production of bio-coal for larger domestic purposes using an integrated process

Dr Zhu LIU

China

PhD in Ecology

Current position: Young Talent Associate Professor in Earth System Science, Tsinghua University, China

Zhu's research focuses on global sustainability and the assessment of the human impacts on the earth system in terms of greenhouse gas emissions. Growing up in China, Zhu developed an interest for sustainable development, which led him to his research project. As a postdoctoral research fellow in sustainability science at Harvard University, he explores the options for global decarbonisation. His research develops bottom-up energy, water, and emission inventories aiming to uncover the social and economic driving forces of energy and emission growth. In his study, he addresses the tensions between industrial activities and the production of human-induced carbon emissions, which are the primary cause of global warming. Using interdisciplinary methods, he assesses issues of energy, climate change, sustainability, and public policy.

At the California Institute of Technology, Zhu worked at tracing global mega city carbon emissions by using satellite data. The information was used to construct the carbon emission distributions with high spatial and temporal solutions. After recently joined Tsinghua University, Zhu is currently leading a big team and conducting the world's largest carbon emission survey, the China Carbon Project, which is supported by the Chinese Academy of Science. His research wants to understand the global carbon budgets and the options towards deep decarbonisation.

2016



Research focus: using carbon emissions as indicators in assessing global sustainability

Dr James Guo Sheng MOO

Singapore

PhD in Materials Chemistry

Current position: Research Scientist at Evonik Industries, Singapore

James, who has been interested in materials chemistry from an early age, has decided to focus his work on creating new materials and understanding how they interact with their surroundings in order to make them most useful to society. He focuses on the development of self-propelled micro/nano-systems along with the extraction of useful macro-behaviour from nanotechnology.

James is currently working in the portfolio development arm of Evonik Asia Research Hub (Singapore) with a focus on the development of novel inorganic materials for emerging applications. During his PhD he has successfully developed an artificial micro-fish that can detect the presence of lead and cadmium in water. For this groundbreaking innovation, he won the Falling Walls Lab Singapore 2016 and was representing the Nanyang Technolog-

ical University at the Falling Walls Lab final in Berlin.

A different aspect of his research is the development of carbon nanomaterials for the removal of heavy metals from water. His work has been included in three different water forums: the Singapore International Water Week's Young Water Leaders Summit, the Asia Pacific Youth Parliament for Water and the World Water Forum.

2016



Research focus: inorganic materials

2016



Dr Ana Rita C. MORAIS

Portugal

PhD in Sustainable Chemistry

Current position: Postdoctoral Researcher at National Renewable Energy Laboratory, United States of America

The environmental changes that have transpired in the last few decades have increased the need to search for more sustainable and renewable carbon sources. Ana thinks that instead of using food culture as a feedstock, we should direct our interest at wastes and residues. Less noble lignocellulosic feedstocks, including wastes and residues, appear to be relevant as potential sources of biofuels, biochemicals, and biomaterials. She regards the use of "dirty" chemicals in sustainable feedstock processing as something that is ruining the

sustainability of biomass-based processes. This is the primary reason why the use of more sustainable solvents in processing of agro-industrial residues has become the focus of her research.

Research focus: integration of green chemistry into the valorisation of biomass wastes and residues through the use of more sustainable technologies

2016



Hani ROCHA EL BIZRI

Brazil

PhD Student in Natural Sciences

Manchester Metropolitan University, United Kingdom

As an associate researcher in the Mamirauá Sustainable Development Institute, Hani has been collecting and analysing data on game mammals' biological traits as well as on hunting and trade of wild meat in the Brazilian and Peruvian Amazon, with strong participation and support from the local people.

Hani seeks solutions for a lack of life-history data on Amazonian wildlife. The new perspective he is providing to sustainability research is an innovative, community-based approach to obtaining reproduction information on wild mammals of the tropics,

which can be applied in sustainable wildlife management initiatives across the world. He points out that almost no management strategy has been successfully developed in dense forests because of the severe lack of biological information, and scientists struggle to infer natural phenomena with very inaccurate data.

- 2018 Award for best presentation at the Student Conference on Conservation Science in Cambridge
- 2017 Scholarship by the Brazilian government to conduct his PhD in the United Kingdom
- 2015 Ralf Yorque Memorial Award for best article published in the journal Ecology and Society

Research focus: achieving sustainable use of wildlife in the Amazon through participatory methods

Dr Deo Florence ONDA

Philippines

PhD in Oceanography

Current position: Assistant Professor and Deputy Director for Research, Marine Science Institute, University of the Philippines, Philippines

Deo is determined to find sustainable solutions to the climate change issues affecting the world's oceans through ecology. His work centres on further understanding the diversity, ecology, distribution, and responses of microbial communities to these changing conditions. With the predicted opening of the Arctic to trade and transportation due to ice loss in the coming years, his research will help assess the impacts that these future activities could have in the region. His ultimate aim is to understand the consequences of the changing environment and increased anthropogenic disturbances to marine ecosystems from the perspectives of microbial ecology.

Deo has participated in a number of scientific expeditions. Among others, he was involved with the Joint Ocean Ice Studies and Beaufort Gyre Exploration Project. He received multiple grants from different institutions and programmes for his research, along with internships and further trainings abroad.

2016



Research focus: host-symbiont interactions, microbial biogeography, diversity, dynamics and trophic interactions, and consequences of changing conditions

Dr Qianhong SHE

China

PhD in Environmental Engineering

Current position: Assistant Professor, Nanyang Technological University, Singapore

Qianhong graduated from the Nanyang Technological University, Singapore, having completed studies in Environmental and Water Resource Engineering. He is working on the development of energy-efficient separation technologies with a focus on membrane technology for promoting environmental sustainability and circular economy. Since his PhD studies, he has focused on one of the most promising technologies for harvesting osmotic energy: pressure-retarded osmosis. Osmotic energy is a new type of renewable energy that is sustainably generated by combining two waters with different salinities, and it has huge energy potential globally. The pressure-retarded osmosis membrane technology developed in Qianhong's research has been recognised as one of the

most promising technologies for capturing this renewable energy. The entirety of his research has been carried out at the Singapore Membrane Technology Centre.

Qianhong's work experience includes, inter alia, serving as technical consultant for a World Bank financed environment project titled "Zhejiang Qiantang River Basin Small Town Environment Project" at the PowerChina Huadong Engineering Corporation along with a research fellowship at Nanyang Technological University.

2016



Research focus: development of pressure-retarded osmosis membrane technology for seawater desalination brine disposal and renewable osmotic energy recovery

2016



Dr Yam Prasad SIWAKOTI

Nepal

PhD in Power Electronics

Current position: Senior Lecturer in the Faculty of Engineering and Information Technology, University of Technology Sydney, Australia

Yam worked for many years in the area of renewable energy and sustainable power generation. His objective is to build scientific partnerships between Nepal and Germany to share both education and research findings, experiences and ideas. After finishing his PhD in Electronic Engineering from Macquarie University in Sydney, he was a postdoctoral fellow at the Department of Energy Technology, Aalborg University, Denmark (2014-2016). He was also a visiting scientist at the Fraunhofer Institute for So-

lar Energy Systems, Freiburg, Germany (2017-2018).

Currently he is a Senior Lecturer in the Faculty of Engineering and Information Technology, University of Technology Sydney, Australia. He serves as an Associate Editor of three major journals of the Institute of Electrical and Electronics Engineers (IEEE): IEEE Transactions on Power Electronics, IEEE Transactions on Industrial Electronics, and IEEE Journal of Emerging and Selected Topics in Power Electronics and the IET Power Electronics. He is also a peer review college member of Engineering and Physical Science Research Council (EPSRC), United Kingdom.

Research focus: power electronics for sustainable energy and transportation

2016



Dr Wai Fen YONG

Malaysia

PhD in Chemical and Biomolecular Engineering

Current position: Associate Professor at Xiamen University Malaysia, Malaysia

In her research, Wai Fen is discovering new and improved ways to perform the process of gas separation. Specifically, she is using her molecular knowledge of membranes to develop gas separation mechanisms that produce fewer waste products, use less energy, and ultimately leave a lower carbon footprint. Wai Fen extends her expertise to the fields of economics and policy as she works to implement her membrane-based techniques at the industrial level.

Wai Fen has received multiple prestigious recognitions for her contributions to the fields of Chemical and Biomolecular Engineering, including the Elias Klein Travel Award and the Emerging Polymer Technologies Summit Travel Award from the North American Membrane Society and The International Innovative Research Network and Commonwealth Scientific and Industrial Research Organisation, Australia, respectively. She holds patents for her ground-breaking work.

2019 Chartered Engineer from Institute of Chemical Engineers, United Kingdom

Research focus: developing sustainable materials and membrane technologies for biogas separation, industrial air purification, haze removal, air quality control, and water treatment

Tegegne WONDOWOSSEN

Ethiopia

PhD Student in Climate Change and Tourism Development, Griffith University, Australia

Current position: Working on Climate Resilient Programme, Department for International Development, United Kingdom government mission in Addis Ababa, Ethiopia

Tegegne is studying the nexus between climate change and the development of tourism in protected areas. Through his interdisciplinary research, he aims to establish cooperation between tourism, agriculture, local communities, and nature conservation in the face of growing climate change. In his PhD research, Tegegne analyses the role of tourism in agricultural development in the Simien Mountains National Park, a World Heritage Site in Ethiopia, his home country. His study offers new perspectives on sustainability research. It explores the potential advantages of expanding tourism as a means of facilitating development as well as climate change adaptation and mitigation. He also investigates the cause-and-effect relationship among variables

of development and points out which subsystem must be sustainable to maintain the system as a whole. The outcomes of this research may have implications for policies in developing countries, such as the Nationally Appropriate Mitigation Actions (NAMAs), the National Adaptation Programs (NAPs), and the Reduction of Emissions from Deforestation and Degradation (REDD+).

2016



Research focus: understanding climate change and tourism nexus by investigating the possibility of tourism as a driver of climate compatible development using Ethiopia as a case study

GREEN TALENTS

2015

Applications total 574
 Application countries 87
 Winners 27



2015



Bishal BANIYA

Nepal
 PhD Student

Institute for Sustainable Futures, University of Technology Sydney, Australia

Bishal is researching on emerging growth and policy paradigms, and the dynamics of International Environmental Agreements with resource productivity-oriented policies as a core research theme to achieving sustainable futures. Bishal's research is exploring the empirical evidence from the past to come up with an integrative policy approach that will ultimately bolster system thinking, and will provide opportunities for policy coherence to leverage the synergistic effect of resource efficiency-oriented policies.

Bishal's research is built on his learnings from nine years of professional and research experience with government, non-government international organisations, and research institutions in Nepal, Sweden, Republic of Korea and Australia. He is researching on the fundamentals of emerging growth and policy paradigms that aim to reconcile the economy-environment tension.

Research focus: resource efficiency policies, green growth, and resource productivity-climate mitigation nexus

Dr Heyker Lellani BAÑOS DÍAZ

Cuba
 PhD in Agricultural Science

Current position: Aggregated Researcher, Head of Entomology Laboratories at National Center for Animals and Plant Health (CENSA), Cuba

The search for alternative pest management is a top priority for agricultural science in Cuba. By reducing economic losses in crop yields and developing resistance to pests and pollution in the agro-ecosystem, sustainable food can be produced. Heyker recognised the need to develop new healthy products for pest control because of today's growing demand for food.

Due to the importance of her research, she has been highly recognised by the media and has received awards from several institutions, such as the Academy of Sciences of Cuba, the Ministry of Agriculture, and the Ministry of Science's Technology and Environment.

2015



Research focus: conservative biological control of agricultural pest

2015



Renaldo BELFON

Trinidad and Tobago

MPhil in Soil Science

Current position: Research Assistant at the University of Guelph, Canada

Renaldo's interest in the area of agro-environmental science was sparked after witnessing the effects of slash-and-burn land clearing and intensive tillage on the environment while growing up in Trinidad and Tobago.

Renaldo's research has focused on the use of conservation agriculture practices, which conserve the soil, reduce greenhouse gas emissions, and ultimately lower the cost and physical demands of crop production, which allows for a greater participation of women in agriculture.

- 2016 Conservation Agriculture for Climate Change Adaptation in the Caribbean Research Grant
- 2015 Award of Excellence for Research, Faculty of Food and Agriculture, University of the West Indies

Research focus: soil and water nutrient management

2015



Dr Meng Nan CHONG

Malaysia

PhD in Engineering

Current position: Associate Professor at Monash University Malaysia, Malaysia

At Monash University Malaysia, Meng Nan is exploring the possibilities of interfacing nanotechnology with photoreactor engineering, to develop innovative Photo-FuelCell technology to improve energy and water environmental-related issues.

In 2016 Meng Nan was awarded the prestigious Newton Advanced Fellowship from the Royal Society of the United Kingdom. The fellowship together with a research grant allows Meng Nan to work collaboratively with researchers from the

University College of London on solar hydrogen energy production through photo electrochemical technology.

- 2016 International Society of Electrochemistry Travel Award for Young Electrochemists
- 2015 Established the Water Conservation Science & Engineering Journal as Editor-in-Chief

Research focus: nanotechnology, environmental photocatalysis, sustainable and water technology, water resources management and sustainability

Dr Geraldine BRENNAN

Ireland/South Africa

PhD in Strategic Management and Sustainable Development

Current position: Circular Economy Lead at Irish Manufacturing Research (IMR), Ireland

Geraldine's applied research focuses on supporting manufacturers and their supply-chains transition to a zero-carbon economy through designing and piloting circular business models and systems innovation demonstration projects.

Geraldine has lectured extensively on circular business models and scaling circular innovation. She holds honorary visiting positions at Imperial College London, Middlesex University Business School, and with the United Kingdom Economic and Social Research Council Centre for Understanding Sustainable Prosperity.

- 2016-2019 Research Fellow, United Kingdom Economic and Social Research Council Centre for Understanding Sustainable Prosperity
- 2016 Visiting Researcher at Centre for Entrepreneurship, Technische Universität Berlin, Germany
- 2015-2016 Postdoctoral Researcher, Imperial College London, United Kingdom

2015



Research focus: circular economy, circular business models, sustainable supply-chains; sustainable production systems; systems change

Dr Ming Fai CHOW

Malaysia

PhD in Civil Engineering

Current position: Senior Lecturer at the National Energy University, Malaysia

Ming Fai's doctoral research focused on quantification and modelling of urban stormwater pollution from different types of land use in Malaysia. After graduation, he began working as a postdoctoral fellow at Academia Sinica in Taiwan and is currently a Senior Lecturer at the National Energy University in Malaysia.

He started to develop a guideline on sustainable urban environment for Malaysia. This guideline aims to protect the hydrological and ecological value of the urban landscape while providing resilient and adaptive measures to deal with flood events.

- 2016 Outstanding Young Academician, National Energy University, Malaysia
- 2011 National Science Fellowship scholarship of the Ministry of Science, Technology and Innovation, Malaysia

2015



Research focus: urban stormwater management, flood modelling, and water resources management

2015



Dr Iordania CONSTANTINOU

Cyprus

PhD in Material Science and Engineering

Current position: Junior Professor at Technische Universität Braunschweig, Germany

Iordania has extensive experience in the design, fabrication, and characterisation of organic semiconductor optoelectronic devices as well as an in-depth understanding of fundamental device physics. The main focus of her PhD research was the development of highly efficient organic solar cells.

Her work with organic solar cells has become extremely valuable for increasing the use of solar power as a renewable energy resource. Iordania was the Chair of the

Student Safety Council in her department where she worked with students, teachers, and researchers to improve the culture of safety in laboratories.

2011 Fulbright Scholarship from the Department of State Bureau of Educational and Cultural Affairs, United States of America

Research focus: organic electronic materials and devices

2015



Dr Catalina Codruta DOBRE

Romania

PhD in Art of Building and Urban Planning

Current position: Researcher at the Université libre de Bruxelles, Belgium

In her doctoral research Catalina investigated the transition of urban areas towards sustainable or water-sensitive environments. Her work provides new insights into sustainable water management by exploring alternative actions co-produced as the result of the interaction between state actors and the civil society.

In addition to her doctoral studies, Catalina is a founding member of the Risk and Architecture Workshop Association, where she organises conferences and workshops

on the role of urban design in flood protection and mitigation. Currently, Catalina is working on the participatory action research project entitled "Brussels sensitive to water" (Brusseau). The project explores the different forms in which citizens can become engaged in stormwater management.

2014 Research Fellow PhD scholarship, Fund for Scientific Research FNRS, Belgium

2013 1st Prize Poster, International Student Conference on Environment and Sustainability, Tongji University, China

2013 Mini-Arc PhD scholarship, Université libre de Bruxelles, Belgium

Research focus: water-sensitive urban design

Paula DE CARVALHO MACHADO ARAUJO

Brazil

MSc in Organic Agriculture

Current position: Head Veterinary Technician at the Mamirauá Institute for Sustainable Development, Brazil

Paula completed her Master's degree in organic agriculture at the Rural Federal University of Rio de Janeiro, Brazil, whilst simultaneously working at the Mamirauá Institute for Sustainable Development.

Paula analysed native plants used as food for cattle and buffalo, applying participatory methods with local communities in a Protected Area in the Amazon region.

She featured plants with characteristics that act as a stable forage resource, reducing the need to use exotic plants in pastures. She devised an innovative questionnaire procedure to survey the experiences from local cattle ranchers associating this knowledge with literal findings, revealing unique insights into the management of natural resources in pastures.

2015



Research focus: agroecology, agroecosystems, animal production, sustainable management in the Amazon region

Dr Sergi GARCIA-SEGURA

Spain

PhD in Electrochemistry

Current position: Assistant Research Professor at the Arizona State University, United States of America

During his PhD, Sergi constructed a flow plant equipped with solar panels for water treatment and carried out an engineering study of electro-chemical filter cells. He was awarded with the International Society of Electrochemistry (ISE) Prize for Environmental Electrochemistry in Switzerland in 2014, and the Antonio Aldaz Award from the Electrochemistry Group of the Royal Spanish Society of Chemistry (RSEQ) in 2016.

2017 Electrochimica Acta and ISE Travel Award for Young Electrochemists, International Society of Electrochemistry

2015



Research focus: environmental electrochemistry and water treatment technologies

2015



Sadiq Abubakar GULMA

Nigeria

MSc in Environmental Engineering

Current position: Programme Manager and Technical Advisor on Urban Environment and Water, Japan International Cooperation Agency, Nigeria

Sadiq is working in Nigeria in the field of sustainable urban development for the government of Japan. Sadiq advises the Japanese government in formulating, implementing and managing the different official development assistance programmes in Nigeria that will support Nigeria's sustainable urban development and take a cue from the development profile of Japan while aiming for the achievement of SDGs. The projects are cutting across urban

water management, solid waste, urban and regional planning, transportation, and exploring and promoting new cooperation models such as working with local start-ups and business incubators in addressing challenges of sustainable cities in Nigeria. He has been implementing green building concepts and supporting LEED certification of buildings as environmentally friendly.

- 2016 Green Build International Conference and Expo Scholarship Recipient from the United States Green Building Council, United States of America
- 2012-2014 Pan African University Scholarship from the African Union Commission

Research focus: sustainable urban development

2015



Bükra KALAYCI

Turkey

PhD Student in Textile Engineering

Istanbul Technical University, Turkey

Bükra researches sustainable textiles and the fashion industry, responsible production and consumption, with a focus on closed-loop textile business models for a circular economy.

Bükra has been focusing on making the textile and fashion industry more sustainable from various aspects: from eco-cleaning options to sustainable materials for fashion. Assuring social compliances and ethical trade along the supply chain is of forefront importance. She firmly believes in circular business models with the combina-

tion of online platforms and the big-data use for the future market of fashion.

- 2015 Jean Monnet Fellowship by European Union for Environmental Studies
- 2015 Patent for a laundry dryer comprising a lint filter

Research focus: sustainable textile and fashion business, compliance standards, responsible production and consumption

Dr Andrea GUTIERREZ

Bolivia

PhD in Mineral Processing Engineering

Current position: Research Associate at the German Aerospace Center (DLR), Germany

Andrea's academic approach focuses on the development of new concepts for thermal energy storage with phase change materials as a medium of storage. The systems should operate at high temperature and at high energy storage density levels. In addition, the investment costs need to be reduced; as a consequence the adaptation of low cost/highly available materials as storage medium is a crucial task on her position at German Aerospace Center (DLR). Furthermore, she currently deals with the management of a new International Energy Agency (IEA) Energy Conservation through Energy Storage (ECES) Annex 36 on Carnot Batteries, where DLR is the operating agent. The IEA ECES Annex 36 aims to establish a platform that brings together experts from the industry and academia, to systematically investigate, assess, and strengthen the potential role of

Carnot Batteries in the future energy systems gaining international attention.

During her doctoral research, she developed new low-cost thermal energy storage materials with wastes from the non-metallic mining industry in Chile.

- 2016 DLR/DAAD Postdoctoral Fellow, Germany
- 2015 Research Stay Funding from the Ministry of Education of Chile - Energy Programme

2015



Research focus: new concepts for thermal energy storage with phase change materials; adaptation of low cost/highly available materials for applications at high temperatures and high energy storage density

Shougat Nazbin KHAN

Bangladesh

MTech in Green Energy Technology

Current position: Founding Director of H.A. Digital School and College, Bangladesh

Shougat's research focuses on different types of collector grid configurations for large photovoltaic parks. Her Master's study was fully funded by the prestigious UNESCO Madanjeet Singh Fellowship. During her Master's studies in Green Energy Technology, she concentrated on solar photovoltaic technology. She has done comprehensive research in wind-solar hybrid systems, grid-tied and standalone photovoltaic systems, solar PV irrigation systems, and thin film solar cells.

- 2017 Forbes 30 Under 30 Asia: Pioneer Women
- 2016 Selected as one of the four global winners of Commonwealth Youth Award for Excellence
- 2016 Asia Young Person of the Year
- 2016 Leadership Fellowship by the Prince's Trust International

2015



Research focus: different types of collector grid configurations for large photovoltaic parks

2015



Dr Md Golam KIBRIA

Bangladesh

PhD in Electrical and Computer Engineering

Current position: Assistant Professor, Chemical and Petroleum Engineering, University of Calgary, Canada

Golam's research focuses on the development of nanomaterial for artificial photosynthesis, i.e. sunlight-driven water splitting and CO₂ reduction to generate sustainable hydrogen and other energy-rich fuels. The aim of his academic approach is to offer alternative, clean, sustainable and storable solar-fuels to consumers and businesses alike.

- 2016-2018 Postdoctoral fellowship by the Government of Canada Participation at the 66th Nobel Laureate meeting Lindau, Germany
- 2016

Research focus: artificial photosynthesis, photocatalysis, electrocatalysis, CO₂ reduction, nanomaterials, solar-fuel devices

2015



Dr Arun Prasad KUMAR

India

PhD in Field Spectrometry, Hyperspectral Image Analysis and Applications

Current position: Assistant Professor at Department of Geography, Central University of Tamil Nadu, India

Arun's research focuses on applications of contemporary remote sensing techniques for landscape monitoring, especially coastal wetlands. His doctoral research focused on species level discrimination of mangrove species in Bhitaknaika National Park at the Indian east coast.

In 2016 he worked as a Visiting Scholar at the German Remote Sensing Data Center (DFD) at the German Aerospace

Center (DLR). During that period, he along with his host Dr Claudia Künzer, Head DFD-DLR, wrote a proposal to apply for the prestigious Alexander von Humboldt International Climate Protection Fellowship. He was awarded the postdoctoral fellowship during the year 2017 and continued his postdoctoral research at DFD-DLR from March 2017 to May 2019.

On his return to India, he joined Central University of Tamil Nadu as a Faculty at the Department of Geography where he teaches Remote Sensing and GIS.

Research focus: remote sensing of wetlands

Kseniia KRAVCHENKO

Ukraine

PhD Student

Institute for Biology, Department of Evolutionary Ecology at Leibniz Institute for Zoo and Wildlife Research (IZW), Germany

As a biologist, Kseniia wants to shed light on the question of how animals react to human-induced changes to global ecosystems such as climate change or processes of urbanisation. In her case study, she focuses on the migratory behaviour of bats in Eastern Europe, especially around the Black Sea region. She has received grants from Bat Conservation International and Eurobats for her research.

Like migratory birds, many bats fly thousands of kilometres to escape to warmer climes during the winter. But how are they being affected by global warming? These are the kind of questions that Kseniia is exploring. For years she has been studying the common noctule, one of the most widespread species of bats in Europe. What she is mostly interested in is climate

change. In many cases its consequences can be seen only indirectly—from changes in the animal world, for instance. This makes bats extremely interesting "bioindicators" for environmental researchers. Kseniia's research focus is on population dynamics, urbanisation and migratory patterns of bats.

- 2016 Member of British Ecological Society
- 2015 Research Associate of NGO Ukrainian Independent Ecological Institute (UIEI)



Research focus: global climate change and migratory animals, sustainable biodiversity management in urban areas, bat migration in Eastern Europe

Larissa MARCHIORI PACHECO

Brazil

PhD Student in Business Strategy

Fundação Getulio Vargas's São Paulo School of Business Administration (FGV/EAESP), São Paulo, Brazil, and Northeastern University, Boston, United States of America

With her research, Larissa focuses on the corporate social responsibility of European multinational corporations operating in Latin America. Larissa also studies the growing demands of a green economy, pointing out that Brazilian energy companies need to react rapidly to change in the energy sector by exploring renewable sources.

She is working as a Teaching Assistant at FGV/EAESP and participating in a research project in partnership with Global Compact to investigate the integration of Sustainable Development Goals in the business strategy of firms in the Brazilian electricity sector. During her research stay at the Ecologic Institute in Germany, she gave support to on-going projects related

to smart cities, water resources management, resource efficiency, and other related topics. This experience allowed her to be in touch with advanced knowledge on topics that are still underdeveloped in her home country.

- 2014 Incluir Project – Case studies writing on Inclusive Businesses in Brazil, with support from the United Nations Development Programme



Research focus: corporate social responsibility and sustainability under the perspective of institutional theory and behavioural strategy

2015



Dr Mohammad MOGHIMI ARDEKANI

Iran
PhD in Engineering

Current position: Lecturer at Design and Engineering Department, Staffordshire University, United Kingdom and Extraordinary Senior Lecturer at Mechanical and Aeronautical Engineering Department, University of Pretoria, South Africa

With his academic research Mohammad aims to optimise concentrated solar power (CSP) plants for maximum optical and thermal efficiencies and minimum generated electricity cost. By reducing the price of the production of solar power, he hopes to further promote investment in renewable energy among governments and citizens alike.

Mohammad is a member of the editorial board of different journals, such as the Journal of Energy and Power Engineering and the International Journal of Current Research in Engineering and Technology.

- 2019 Rated as Promising Young Researcher (Y-rated) by the National Research Foundation, South Africa
- 2013-2016 Postgraduate Research Support Bursary, University of Pretoria, South Africa

Research focus: solar energy, concentrating solar power, optimisation, computational fluid dynamic, ray tracing

2015



Dr Kapil MOOTHI

South Africa
PhD in Chemical Engineering

Current position: Associate Professor and Head of Department of Chemical Engineering at University of Johannesburg, South Africa

For his PhD work on the conversion of coal into carbon nanotubes (CNTs), Kapil was granted a provisional patent. Based on his research outcomes, products that enable the cleaning of wastewater using a carbon nanotube-infused polymer composite membrane as a filtration medium are under development. He hopes that his research in investigating the role of nanotechnology in environmental engineering for the treatment of water and wastewater will help in supporting the UN's Sustainable Development Goal (SDG) 6: Ensure availability

and sustainable management of water and sanitation for all.

- 2019 Mail and Guardian Top 200 Young South Africans
- 2015 Brightest Young Minds (BYM) Recipient
- 2011 Granted NRF In-Country Post-graduate Scholarship from DAAD

Research focus: nanotechnology, water treatment, carbon nanotubes, membranes, green chemistry and synthesis

Dr Maria E. MONDEJAR

Spain
PhD in Thermodynamics of Fluids

Current position: Permanent Researcher at Technical University of Denmark, Denmark

In Maria's PhD project, she focused on the thermophysical characterisation of gaseous fuel mixtures with the aim of extending the knowledge on behaviours of biogas and other non-conventional gases. Currently, she conducts research on innovative fluids for new technologies for power generation from industrial waste, heat, and renewable energy.

- 2015 Marie Skłodowska-Curie Fellowship
- 2013 Research Opportunities Week Award, Technical University Munich, Germany
- 2012 Best PhD of the academic year, University of Valladolid, Spain

After her participation in the Green Talents programme, she was granted European funding to pursue her research project.

2015



Research focus: new sustainable working fluids for small-scale thermal power generation

Dr Amir MOSAVI

Iran
PhD in Applied Informatics and Data Science

Current position: Research Fellow at Thuringian Institute of Sustainability, Research Fellow at Bauhaus-Universität Weimar, Germany and Assistant Professor at School of the Built Environment, Oxford Brookes University, United Kingdom

Amir believes in the extensive potential of Predictive Models. From simulating the extreme events to informing policy analysis to generating hazard maps, these models eliminate much of the simulation costs as well as trial and error in the crucial task facing sustainable developments. Amir's technological advancement aims at providing effective tools to organisations to predict and visualise the results and consequences of their decisions. So better policies are made and more sustainable actions are taken. Amir's further research interests include hydrological and earth systems modelling, machine learning, deep learning, atmospheric science, hazard modelling, climate models, and time series prediction.

- 2019 Alexander von Humboldt Fellowship Award
- 2018 Georgia Institute of Technology Research Award
- 2018 Australian Endeavour Fellowship Award
- 2018 Alain Bensoussan Fellowship Award
- 2017 UNESCO Young Scientists Award

2015



Research focus: climate change and extreme events modelling

2015



Dr Joey D. OCON

Philippines

PhD in Environmental Science and Engineering

Current position: Assistant Professor at the University of the Philippines Diliman, Philippines

Joey is currently working as Assistant Professor at the University of the Philippines leading the Laboratory of Electrochemical Engineering.

His childhood experiences in rural areas of the Philippines made him realise how crucial technology can be in improving human living quality, and how resilience to natural forces is crucial for people's livelihoods. In his research he focuses on efficient electrode materials and processes in electrochemical technologies for energy and environmental applications.

- 2018/2019 ASEAN Science and Technology Fellow
- 2016 United Kingdom Royal Academy of Engineering Newton Leaders in Innovation Fellowship
- 2015 Outstanding Young Scientist Award by the National Academy of Science and Technology Philippines

Research focus: electrochemical energy storage, heterogeneous catalysis, green technology and renewable energy, science and technology policy

2015



Dr Naim RASHID

Pakistan

PhD in Civil and Environmental Engineering

Current position: Assistant Professor of Chemical Engineering at COMSATS Institute of Information Technology, Pakistan

Naim is working as Fulbright Research Scientist at Arizona State University, United States of America and as Assistant Professor of Chemical Engineering at COMSATS Institute of Information Technology, Pakistan.

His research focuses on the water-energy nexus: bio-energy production from waste materials and microalgae, water and wastewater treatment. He is aiming to promote bio-energy research in his country by strengthening the liaison between industry and academia.

Naim has been the recipient of numerous scholarships and awards throughout his academic career. He received scholarships from the Higher Education Commission of Pakistan, the Ministry of Science and Technology, Republic of Korea, Myongji University, and Korea's Advanced Institute of Science and Technology. He was also selected for a PhD fellowship, Erasmus Mundus (ETECOS3) at UNESCO-IHE, the Netherlands.

- 2017 Selected as Member of the Global Young Academy

Research focus: water-energy nexus, waste mitigation, and sustainable development

Dr Paulo Tarso S. OLIVEIRA

Brazil

PhD in Hydraulics and Sanitary Engineering

Current position: Professor of Hydrology and Water Resources at the Federal University of Mato Grosso do Sul, Brazil

Paulo's investigations have led to a better understanding of the mechanisms of hydrological and soil erosion processes approaching aspects of the relationship among hydrology, human activities, and the environment. He has worked with the development and improvement of models and data analysis by using hydrometeorological data, which includes a range of spatial scales (plots, hillslope, watershed and continental) and sources, such as experimental field, laboratory, and remote sensing. Water security aspects have been studied through the conjunctive analysis of changes in land use, climate, and hydrological processes for ensuring the soil and water conservation, water-food-energy-ecosystems services nexus, and a more efficient agriculture production, in addition to a sustainable development of the country.

- 2019 Honor – Eng. Frederico Valente Award, the Brazilian Association of Sanitary and Environmental Engineering
- 2018 Fellow of the Brazilian Council for Scientific and Technological Development (CNPq)
- 2018 Outstanding Lecturer Award – Professor of Environmental Engineering at the Federal University of Mato Grosso do Sul, Brazil

2015



Research focus: mechanism of hydrological processes and soil erosion in different landscapes

Dr Shujuan ZHANG

China

PhD in Environmental Science

Current position: Postdoctoral Researcher at Southeast University, China

Shujuan's research contributes scientific findings to arbuscular mycorrhizal fungi and its possible applications. In her PhD thesis she developed an innovative way to reduce the loss of nitrogen and phosphorus from paddy fields in Northeast China using these fungi. During that time, she also studied the carbon and nitrogen economy of plants at the Australian National University, Australia.

- 2014 Received Grants from the United Kingdom's New Phytologist Trust
- 2012 Awarded a 2-year Scholarship from the Chinese Scholarship Council

2015



Research focus: contributing scientific findings to arbuscular mycorrhizal fungi, using them to restore soil ecosystem functioning and sustainability

2015



Dr Samuel ZIPPER
United States of America
PhD in Freshwater and Marine Science

Current position: Assistant Scientist, Groundwater Hydrology, Kansas Geological Survey, University of Kansas, United States of America

Samuel's research is situated within the field of Ecohydrology, which focuses on the feedback between vegetation and the water cycle. He believes that local solutions are required to achieve global sustainability goals and that working across disciplines is an essential part of the modern scientist's toolbox. He also writes about Ecohydrology on the WaterUnderground blog.

Samuel has worked closely with a far-reaching set of collaborators from institutions including the National University of San Luis, Argentina, the International Water Centre, Australia, and the Helmholtz Centre for Environmental Research, Germany.

- 2016 James R. Villemonte Excellence in Research Award, University of Wisconsin-Madison, United States of America
- 2014 Fellowship by National Socio-Environmental Synthesis Center

Research focus: ecohydrology

GREEN TALENTS



Applications total	816
Application countries	103
Winners	25



2014



Dr Martin AGYEMANG

Ghana

PhD in Environmental Management

Current position: Assistant Research Professor at the New Huadu Business School, Minjiang University, China

Martin's research focuses on sustainable supply chain, circular economy, and e-commerce within the context of decision making and game theory. His PhD research project assessed the opportunities for redesign of complex global supply chains to enhance environmental sustainability in the cashew industry of West Africa.

Research focus: sustainable supply chain, circular economy, and e-commerce

2014



Sergio BARAVALLE

Argentina

MSc in Agricultural and Biosystem Engineering (Fulbright Fellow)

Current position: Director for the Development of Sustainable Opportunities at the National Ministry of Social Development, Argentina

Sergio demonstrates an exceptionally multi-disciplinary approach in his quest for innovative solutions in the scientific sector. With a molecular biology background, he has worked as a business developer for multinational companies.

Sergio explored the viability of renewable energies as a sustainable business model whilst studying for his Master's degree in Argentina. After his MSc in Biological and Agricultural Engineering at Washington

State University, he also studied Logistics and Supply Chain Management (Massachusetts Institute of Technology, MIT) and Project Management (Washington State University, WSU). Combining his business and science backgrounds, he develops sustainable solutions using technologies such as pyrolysis, gasification, composting and anaerobic digestion.

Research focus: feasibility analysis with local government and multinational corporations for the application of the bioequality concept

Dr Adrianus ARIA

Indonesia

PhD in Aeronautics

Current position: Lecturer at Cranfield University, United Kingdom

After obtaining his PhD from the California Institute of Technology in Aeronautics, Adrianus decided to continue his specialisation in nanostructure materials – his trump card to help make the world more sustainable.

Understanding the characteristics of nanomaterials could lead the charge in advancing sustainability in developed and developing countries. Adrianus is looking to develop nanostructure materials with extreme wetting properties. By making materials extremely hydrophobic water is repelled more effectively, making the materials self-cleaning, long-lasting, and more efficient over time. In practice, these materials could be used for a sewage or drainage system. On the other side of the spectrum, by making materials extremely hydrophilic water is attracted more strongly. These materials could, for instance, be used for a moisture collector or water heating system.

Adrianus was awarded a Fulbright Scholarship as well as the William F. Ballhaus Prize for an Outstanding Doctoral Dissertation in Aeronautics. Currently, he is working as a lecturer at the Cranfield University.

2014



Research focus: developing robust nanostructured materials that can repel or attract fluids

Kerry BOBBINS

South Africa

PhD Student in Development Planning

University College London, United Kingdom

Through her research Kerry tackles issues related to equitable and sustainable resource provision, and aims to raise awareness around the benefits of incorporating ecosystem services and green infrastructure in urban areas.

Kerry's PhD project aims to describe the understanding and use of green infrastructure concepts in Johannesburg, South Africa. Kerry investigates how histories, actors and the local context shape the way policy concepts are translated and used in practice. This includes a framing of the use of green infrastructure concepts at the city and project level. Knowledge generated from her project will contribute toward understanding the way environmental concepts gain meaning in cities through planning and management processes. As mentioned above, the findings of her PhD research will contribute knowledge on ur-

ban policy for supporting the development of sustainable urban infrastructure in future.

- 2018 Royal Geographical Society Dudley Stamp Memorial Award
- 2017/18 AfriSam-SAIA Award for Sustainable Architecture + Innovation
- 2016 Commonwealth PhD Scholarship
- 2015 Mail & Guardian's Top 200 Young South Africans
- 2015 International Social Science Council World Social Science Fellow

2014



Research focus: sustainable development and green infrastructure

2014

Dr Heather BUCKLEY

Canada

PhD in Green and Inorganic Chemistry

Current position: Assistant Professor of Civil Engineering and Adjunct Professor of Chemistry at the University of Victoria, Canada



Heather's interdisciplinary research team at the University of Victoria tackles challenges at the interface of Green Chemistry, Civil Engineering, and Public Health, centring their efforts around creating tools for better monitoring of drinking water contaminants and the design of safer alternative technologies in water treatment.

Heather sees technological interventions as one piece of the puzzle for empowering communities globally. Her doctoral and postdoctoral work at the University

of California, Berkeley, have taken her to Poland, Jordan, India, and Germany to perform outreach, field work, and research. She has worked in non-platinum fuel cell catalyst design, air-sensitive metal chemistry, and drinking water remediation, as well as in the development of safer building materials for low-income communities, and alternative preservatives for home and personal care products. Heather has started her own research group with a faculty position in the University of Victoria's Green Civil Engineering programme in January 2018.

2014 International Fulbright Science and Technology Fellow

Research focus: safe drinking water through energy-efficient fluoride removal

2014

Maksymilian KOCHANSKI

Poland

PhD Student in Sustainable Energy Engineering

Warsaw University of Technology, Poland



Engineer Maksymilian is combining the use of technological advances and behavioural science to optimise energy systems for public buildings. His current research aims at minimising environmental impacts of energy systems thanks to the development and application of novel machine-learning tools.

During his studies, Maksymilian has been able to spend a substantial amount of time at international institutions, studying a semester apiece in the United States of America, Denmark, and Australia. Thanks

to participation in the Green Talents programme, he also participated in a research stay at E.ON Energy Research Centre in RWTH Aachen University in Germany. During this time he has had the opportunity to carry out experiments exploring the use of sustainable energy: electronics, IT, and industrial design in virtual environments mirroring public buildings.

Research focus: energy efficiency, usage of IT for optimising environmental impact of energy systems

Dr Burak GUZELTURK

Turkey

PhD in Electrical and Electronics Engineering

Current position: Postdoctoral Research Fellow at Stanford University, United States of America

Burak's research focuses on the development of semiconductor nanomaterials with tailored optical properties to accomplish energy-efficient next-generation optoelectronics, which will strongly contribute to the sustainable development of the world.

- 2015 Photonics21 Student Innovation Award
- 2015 IEEE Photonics Society Graduate Student Fellowship
- 2013 SPIE Optics and Photonics Education Scholarship Award

2014



Research focus: nanotechnology, photonics, academics

Dr Jian-Yuan LEE

Singapore

PhD in Sustainable Earth

Current position: Project Manager/Research Scientist at Rolls-Royce@Nanyang Technological University Corporate Lab, Singapore

Jian-Yuan was a research scientist and Nanyang President's Graduate Scholar focusing on Sustainable Earth at Nanyang Technological University. His research aim is to lower clean water production costs via applying Engineered Osmosis (EO), a state-of-the-art desalination process.

Jian-Yuan is currently working on 3D printed spacers using additive manufacturing technology to address the problem of external concentration polarisation, a ubiquitous problem occurring in all the membrane processes.

- 2016 Best Poster Award of Singapore International Water Week
- 2015 Best Poster Award of Advanced Membrane Technology VI Conference
- 2015 North American Membrane Society (NAMS) Student Fellowship Award
- 2015 European Membrane Society (EMS) Best Paper Award and PhD Student Travel Award
- 2012 Nanyang President's Graduate Scholarship Award

2014



Research focus: materials science and engineering, chemistry and biological chemistry, 3D printing, membrane technology

2014



Dr Jing LIU

China

PhD in Chemical and Biomedical Engineering

Current position: Applications Scientist at Nanometrics Southeast Asia Pte Ltd., Singapore

With her postdoctoral research into microbial fuel cells (MFC's), Jing is improving one of the most promising green techniques for electricity production and waste remediation. She designed and fabricated a graphene-based, hierarchically porous MFC anode by integrating nanotechnology and architectural engineering.

She also constructed a unique genetically engineered Escherichia coli strain that exhibits an unprecedentedly high metabolic activity towards glycerol.

Research focus: non-destructive optical testing, microbial fuel cell, biosensors

2014



Kennedy MBEVA

Kenya

MSc in Environmental Management and Sustainable Development

Current position: Research Fellow at African Centre for Technology Studies (ACTS), Kenya

Kennedy's current research focuses on the effectiveness of climate finance regimes, within the broader context of climate policy and governance. For his Master's thesis, he conducted a study on the effectiveness of international public climate finance in Kenya.

2012 & 2015 Kenyan delegation member COP18 and COP21, UN Framework Convention on Climate Change (UNFCCC) UNEP-Bayer Young Environment Envoy
2010

Research focus: environmental governance and sustainable development nexus

Dr Lovanomenjanahary MARLINE

Madagascar

PhD in Biological Sciences

Current position: Postdoctoral Fellow at the Department of Biological Sciences, University of Cape Town, South Africa

Lova is working in a field that links plant biology, ecology and conservation. She has been focusing her research on bryophytes, a poorly studied group of plant in tropical ecosystems. They are a difficult group of plant and, consequently, poorly known in Africa and neighbouring islands. However, their maintenance in ecosystems is of prime interest for tropical forests where they play a key part in nutrients cycling and water retention. The study of bryophytes (as of other small organisms) is, consequently, of particular interest and of great need to better understand tropical forest functioning in a changing environment.

Lova's aim is to raise awareness on the significance of bryophytes as a bioindicator of environmental changes and their use for conservation planning.

2014



Research focus: diversity and distribution of bryophyte in Madagascar, plant ecology, taxonomy, and biodiversity conservation

Dr Asad MEHMOOD

Pakistan

PhD in Energy and Environmental Engineering

Current position: Visiting Scientist at Korea Institute of Science and Technology, Republic of Korea

During his PhD at the Korea Institute of Science and Technology, Asad investigated the catalyst materials and electrode structures of low temperature fuel cells, in order to find ways of making this innovative technology more commercially viable by boosting durability and reducing cost.

Currently, as a Postdoctoral Fellow, he is working on the development of non-precious metal catalysts for advanced energy systems.

2014 Excellent Research Paper Award, Korea University of Science and Technology, Republic of Korea
2014 Academic Excellence Award, Korea Institute of Science and Technology, Republic of Korea

2014



Research focus: non-precious metal catalysts for advanced energy conversion and storage systems

2014



Tatianna MELLO PEREIRA DA SILVA

Brazil

PhD Student in International Development

University of Edinburgh, United Kingdom

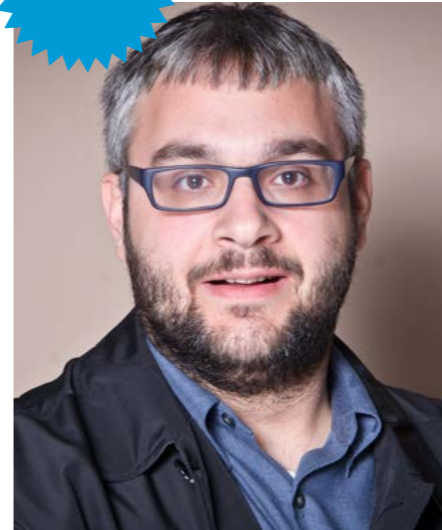
Tatianna holds an MSc in Public Policy and an MPhil in International Law and is currently a PhD student in International Development at the University of Edinburgh, Scotland. For her PhD, Tatianna seeks to understand how the recycling economy for PET (polyethylene terephthalate) is configured in Brazil and how and in what ways this configuration is unfavourable to waste pickers. Her research is based on a 7-month-long fieldwork journey that started in one of the biggest dumpsites in Latin America and progressed until the point where PET bottles were repurposed into a new product for the consumer market.

She is currently working as an independent consultant in Brazil providing strategic advice to clients in the public, private, and third sectors on how best to engage with communities and design human-centred solutions for their problems. The last project she was involved in was commissioned by Vale S.A., a multinational mining company, and consisted on an evaluation of its reparation measures following the Brumadinho dam collapse that killed over 250 people and impacted over 120,000 people.

- 2015 Perfect Storm Scholarship awarded by the Leverhulme Trust
- 2013 Granted Chevening Scholarship and a Lemann Fellowship

Research focus: waste, poverty, empowerment, adverse incorporation, and development

2014



Dr Nikolaos MOUSTAKAS

Greece

PhD in Photocatalysis/Artificial Photosynthesis

Current position: Postdoctoral Researcher at the Leibniz Institute for Catalysis at the University of Rostock (LIKAT), Germany

Nikolaos has a keen interest in interdisciplinary research connecting physics, chemistry, and material science. He focuses on designing and synthesising nanomaterials based on metal oxides (for example, titanium dioxide) and using them as photocatalysts in CO₂ conversion into fuels (solar fuels, for example, methane) in a process often referenced in literature as artificial photosynthesis. In his research, he tries to understand the underlying mechanism of this conversion and strategically

design efficient nanomaterials to carry out this process. With his academic approach, he contributes to solving the energy crisis and tackling the greenhouse effect.

- 2015 Second place in the Falling Walls Lab Competition, Greece
- 2014 Winner of the 2014 Famelab Greece National Science Communication Competition and representative of Greece in the International Famelab Competition 2014 in Cheltenham, United Kingdom

Research focus: photocatalysis, artificial photosynthesis, solar fuels, synthesis of advanced nanomaterials

Dr Patricio MENDOZA-ARAYA

Chile

PhD in Electrical Engineering

Current position: Assistant Professor at University of Chile, Chile

Patricio's research focuses on the improvement of microgrids by using a novel approach to their stable operation. With his academic work he aims to promote the adoption of a sustainable, renewable energy supply in both developing and developed economies.

During his PhD studies at the University of Wisconsin-Madison, United States of America, Patricio worked on the so-called 'Microformer', an alternative power distribution transformer mainly built using the transformer from a post-consumer microwave oven.

Following the Green Talents award in 2014, he worked as a researcher at the Institute for Drive Systems and Power Electronics (IAL) at Leibniz University in Hannover, Germany. Together with his

team, he developed hardware and software tools for microgrids and renewable energy evaluation.

- 2011 Winner of IEEE Distinguished Student Humanitarian Prize, Presidents' Change the World competition
- 2008 Fulbright Scholarship for a doctorate programme at the University of Wisconsin-Madison, United States of America

2014



Research focus: microgrids development, renewable energy integration, microgrid stability

Dr Femeena PANDARA VALAPPIL

India

PhD in Agricultural and Biological Engineering

Current position: Technical Consultant and Engineer for BAI Group, LLC in State College, Pennsylvania, United States of America

Femeena developed a modelling framework to determine environmentally and economically sustainable cropping patterns to achieve food and biofuel production targets while minimising water pollution.

Femeena was awarded a Green Talent due to her ideas, which have the potential to be implemented on a large scale to eradicate food security issues while also protecting the environment. Her research stay with Dr Fohrer at the University of Kiel, Germany, proved to be very beneficial for her career. Dr Fohrer is part of her PhD research committee and invited her back to Kiel for data collection in 2016.

- 2019 Selected for UNLEASH Innovation Lab
- 2019 2nd Place in Boyd-Scott Graduate Student Paper Competition at American Society of Agricultural and Biological Engineers (ASABE) meeting in Boston
- 2019 New Face of ASABE-Professionals
- 2016 Ethics Video Competition award by ASABE
- 2014 Berkner Fellowship by American Geophysical Union

2014



Research focus: in-stream water quality modelling

2014



Paribesh PRADHAN

Nepal

MSc in Physical Geography and Master of Advanced Studies in Sustainable Water Resources

University of Zurich and Swiss Federal Institute of Technology (ETH) in Zurich, Switzerland

Paribesh is interested in the impact of climate change in runoff and river flows, its associated risks and vulnerabilities, and how they subsequently affect water security. He further focuses on high mountain hydrology and climate along with their impact on communities and environmental ecosystems. He has more than seven years of professional experience in international cooperation and development which spans working at the International Center for Integrated Mountain Development (ICIMOD)

and the Mountain Forum Secretariat in Nepal, United Nations Environment Program (UNEP) in Thailand, and the Swiss Agency for Development and Cooperation (SDC) in Switzerland.

In previous research, Paribesh has been working on glaciers, gaining field based experience and knowledge in collecting in-situ data in remote areas of Swedish Lapland and Kyrgyzstan in Central Asia.

Research focus: applied glacial hydrology and water resource management in alpine regions

2014



Dr Irene REIZMAN

United States of America

PhD in Chemical Engineering

Current position: Assistant Professor of Chemical Engineering at Rose-Hulman Institute of Technology, United States of America

With the need for renewable energy sources, Irene's research focuses on strategies to engineer microorganisms for renewable chemical production to help reduce greenhouse gas emissions. She works with the microbe Escherichia coli to help facilitate solutions based on biotechnology for glucaric acid production from glucose. Her findings and developments will be beneficial in the fields of biofuels, global food production, and environmental improvement.

Recently, Irene has been more involved in undergraduate education. She was part of an interdisciplinary team which developed a new course at Rose-Hulman Institute of Technology called Global Engineering and the Social Context. In this course, students consider the practice of engineering in a global context and consider the implication of their design choices with respect to local environment, culture, and stakeholder needs. The course includes an on-campus component and a design experience abroad. Parts of the course were conducted in Germany with partners at Otto von Guericke University Magdeburg and Hochschule Esslingen.

Research focus: metabolic engineering of microorganisms for renewable chemical production, biochemical engineering education

2011-2014 National Institute of Health Biotechnology Traineeship

Dr Muhammad Saif Ur REHMAN

Pakistan

PhD in Civil and Environmental Engineering

Current position: Assistant Professor at COMSATS Institute of Information Technology, Pakistan

In his research, Muhammad focuses on improving the sustainable production process of biofuel to optimise the recovery of valuable by-products, such as biosorbents, which can be used in wastewater treatment.

Rice is one of the world's most abundant crops, leaving an annual residue of up to 900 million tonnes of rice straw after harvest. Muhammad is researching the development of a rice straw biorefinery (RSB), which will recover multiple products simultaneously, such as bioethanol and biomaterials like silica and biochar from residual biomass.

His ideas promote cleaner production, improve resource recovery and crucially reduce costs by consolidating various processes in one biorefinery.

- 2018 Selected as Member of the Global Young Academy
- 2016 Chinese Academy of Sciences Postdoctoral Fellowship

2014



Research focus: biorefinery, wastewater treatment

Dr Juan David SEPÚLVEDA CHAVERRA

Colombia

PhD in Sustainable Development

Current position: Executive Director at Fundación Enerstud, Colombia

With a background in industrial engineering, Juan is focusing his talents on the field of low-carbon landscape development for energy access and efficiency in rural territories.

His research brings a truly interdisciplinary dimension to low-carbon landscape development and energy planning. The focus lies on the interaction between social systems and ecosystem services within a particular landscape; between living, developing communities, and their environments.

His concepts are taking the technological, as well as the human, social, economic, and environmental dimensions into account. Those concepts could influence policy-making tools to promote low-carbon landscape development, which have a great potential in achieving sustainable rural communities.

2014



Research focus: energy efficiency and landscape development

2014



Melissa SIKOSANA

Zimbabwe

PhD Student at Institute of Biofunctional Polymer Materials

Leibniz Institute for Polymer Research Dresden, Germany

Melissa's latest research explores the feasibility of using bio-responsive antimicrobial coatings for water purification in developing countries. She is Marie Skłodowska Curie Fellow.

Melissa is one of the very few chemical engineers in Southern Africa who is trained in biomimicry and has held multiple research positions over the last few years. She aims to link scientific solutions to societal innovations.

Her ultimate goal is to use biophilic design to create functional and simple, socio-tech-

nological interventions that improve how people and communities function.

- 2018 3rd Place Award Marie-Curie Falling Walls Lab
- 2016 Director and Co-founder of Asili Pty Ltd. Biophilic Systems Design
- 2015 Generation of water recycling model for the restoration of ecological function of hydrological cycles in urban cities for developing economies

Research focus: feasibility of using bio-responsive antimicrobial coatings for water purification in developing countries

2014



Dr Huai WANG

China

PhD in Electronic Engineering

Current position: Associate Professor at Aalborg University, Denmark

Huai has a keen interest in reliable and sustainable power electronics for efficient appliances and renewable energy applications.

In his PhD thesis he focused on energy-efficient power electronics converters, for use in electric public transport methods (metros, high-speed trains, trams, and buses) in Hong Kong.

He participated in research stays at the Massachusetts Institute of Technology,

United States of America, and Swiss Federal Institute of Technology in Zurich (ETH Zurich), Switzerland. He has received several academic awards.

- 2016 Richard M. Bass Outstanding Young Power Electronics Engineer Award
- 2011-2014 Filed four patents on innovative capacitive DC-link solutions

Research focus: reliable and sustainable power electronics for efficient appliances and renewable energy applications

Dr Nikodem SZUMILO

Poland

PhD in Real Estate Finance

Current position: Associate Professor at University College London, United Kingdom

Tackling the main concern holding back investment into sustainable real estate – a lack of reliable evidence for financial returns on sustainable buildings – Nikodem is addressing this important issue in his research.

As 40 percent of energy consumption in the developed world takes place in buildings, sustainable development in the property industry is extremely important. Not only do environmental concerns play a central role here, but businesses, investors, and the economy also stand to profit from sustainable real estate.

Nikodem seeks to remedy this information gap and hopes to help overcome the most common reasons for the reluctance to invest in sustainable real estate. These holdbacks have been identified as a mixture of unwill-

ingness to be swayed by merely theoretical arguments (as opposed to empirical evidence of financial returns); additional evidence that is required by financial institutions for investment backing of sustainable real estate; and the lack of evidence establishing the optimal use of financial and physical resources in such projects.

2014



Research focus: financial and investment advantages of sustainability in real estate markets

Dr Li WEI

China

PhD in Control Engineering

Current position: Assistant Professor at Tongji University, China

In her current research, Li focuses on the management of an energy storage system and its application in electrical vehicle and traction power systems. With her academic approach, she aims to improve the efficiency of super capacitors and their reliability, durability and safety as large-scale sustainable energy storing systems.

Li was elected to the Youth Elite Programme of her university in 2015. With this financial support, she studied the ageing behaviour of supercapacitors and their application, for which she was granted two patents in 2016.

2014



Research focus: management of an energy storage system and its application in electrical vehicle and traction power systems

2014



Dr Nkulumo ZINYENGERE

Zimbabwe

PhD in Environmental Science

Current position: Young Professional at World Bank's Agriculture and Food Global Practice, United States of America

Nkulumo's latest research focuses on the impact of climate change, specifically in climate-sensitive sectors in Africa. During his PhD thesis, he and his research team developed a large-scale case study of five localities spread across the region (Lesotho, Malawi, South Africa, Swaziland, and Zimbabwe) and tested localised farming strategies and their potential contribution to adaptation.

In 2017, Nkulumo published a book titled 'Beyond Agricultural Impacts – Multiple

Perspectives on Climate Change in Africa' together with his research stay supervisor and co-editor Professor Ifejika Speranza.

2013-2014 Global Environmental Change Research in Africa Award (System for Analysis, Research and Training)

2012-2013 African Climate Change Fellowship Program Award (International Development Research Centre)

Research focus: climate change impacts and adaptation in various climate-sensitive economic sectors in Africa

GREEN TALENTS

2013

Applications total	431
Application countries	79
Winners	25



2013



Dr Sohail AHMAD

India

PhD in City Planning

Current position: Humboldt Research Fellow at Mercator Research Institute on Global Commons and Climate Change (MCC) GmbH, Germany and Research Fellow at University of Glasgow, United Kingdom

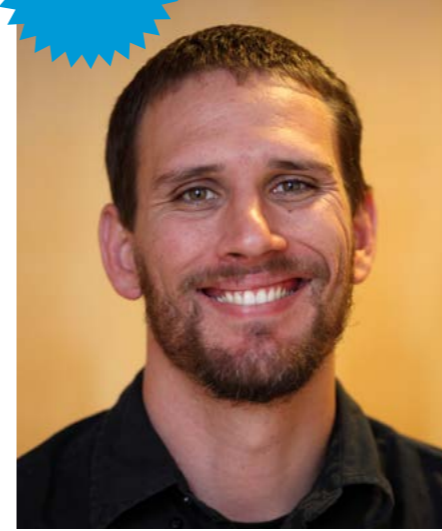
Having grown up in India, Sohail became aware of challenges such as congestion, astronomical greenhouse gas emissions and the lack of proper housing and infrastructure in urban areas, and made them his research focus. He uses the development with co-benefits approach to find the most sustainable alternatives for those issues. Sohail focuses on application-oriented research on sustainable urban plan-

ning, particularly on sustainable concepts of mobility and the use of energy in Asian cities.

- 2015-2017 Humboldt Research Fellowship for Postdoctoral Research from Alexander von Humboldt Foundation
- 2014 World Social Science Fellow for Sustainable Urbanisation at the International Social Science Council (ISSC)

Research focus: exploring low-carbon urban development options in South Asian cities

2013



Dr Heinrich BADENHORST

South Africa

PhD in Chemical Engineering

Current position: Director of Research and Development, CarbonScape, New Zealand

Following on from research to redefine the use of carbon and graphite materials, Heinrich is leading the research team at CarbonScape in New Zealand making graphite from a fully sustainable resource, namely sawdust. This takes a big step towards closing the life-cycle loop of graphite, a valuable future resource, especially for batteries used in energy storage and electric vehicles. The approach aims to minimise the cost to the environment by leaving natural graphite in the ground and avoiding other non-renewable feedstocks. In addition, the group is working on being

able to utilise waste streams such as carbon black from recycled scrap tyres. Heinrich's work in energy capture and storage gained an international reputation, which led to several grants, accolades, and collaboration with world leaders in this field.

- 2018 Provisional South African Patent for 'Concentrated solar 3D printer'
- 2017 Awarded Mering Naude Medal of the Royal Society of South Africa
- 2015 Winner for Green Technology in Innovation Hub's Gauteng Accelerator Program
- 2013 Participation at the 63th Nobel Laureate meeting Lindau, Germany

Research focus: carbon and graphite from sustainable and waste resources

Dr Ram AVTAR

India

PhD in Forest Remote Sensing

Current position: Research Fellow at United Nations University, Japan

Ram holds a PhD in Forest Remote Sensing and a Master's degree in Environmental Studies. He has a keen interest in global climate change and is passionate about the environment, biodiversity, and sustainable development. Ram's doctoral research at the University of Tokyo focused on multi-sensor remote sensing techniques for REDD+, with a concentration in Cambodian forests. After his PhD, he began working as a Postdoctoral Fellow at the Japan Agency for Marine-Earth Science and Technology.

- 2016 INSPIRE Award by Ministry of Science and Technology, Government of India
- 2015 Nomination for Lead Author for the IPBES assessment report

2013



Research focus: global change and resilience, disaster risk reduction, biodiversity, and ecosystem services

Dr Ksenija BUNJAK

Serbia

PhD in Architecture

Current position: Architect and Co-founder of EAT group (Eco Art & Theory), Serbia

Ksenija holds a PhD in Architecture from the University of Belgrade and is co-founder of the international volunteer organisation EAT - Eco Art & Theory, based in Serbia. With an impressive academic and professional background in architecture, she aims to identify the characteristics of Serbian villages to help develop sustainable solutions for architecture and infrastructure in rural areas.

From 2011 to 2012, she was a visiting PhD researcher at the Institute for Architectural Technologies at the Royal Danish Academy of Fine Arts. Her research contributes to rural sustainability by collecting and distributing past knowledge and experiences on rural housing.

- 2015 Publication of her first book
- 2014 Young Researchers' School, Shanghai, China
- 2008 University of Belgrade's award for best research work

2013



Research focus: sustainable urban and rural development

2013



Dr Oscar Gerardo CASTRO ARDILA

Colombia

PhD in Wind Energy

Current position: Postdoctoral Researcher at Technical University of Denmark, Denmark

Oscar's research focuses on a progressive structural damage developed in wind turbine blades called fatigue. He works on the development of fatigue test methods and damage-based fatigue prediction models for wind turbine blades. His aim is to contribute to reducing the operational expenses of wind turbine systems by improving the structural performance and lifetime predictability of wind turbine blades.

Oscar works on research projects whose partners include leading European wind energy companies and research centres, such as Siemens Gamesa, Vestas Wind Systems A/S, LM Wind Power A/S, Fraunhofer IWES, and Leibniz University Hannover.

- 2019 Clubes de Ciencia Colombia
- 2010 National Programme for Training Young Researchers and Innovators Virginia Gutierrez de Pineda, granted by Administrative Department of Science, Technology and Innovation (Colciencias)
- 2009 Awarded Claudio Fernandez Riva at the University of Valle, Colombia

Research focus: wind energy

2013



Dr Mita DASOG

Canada

PhD in Materials Chemistry

Current position: Assistant Professor at Dalhousie University, Canada

Mita's independent research focuses on developing sustainable nanomaterials for renewable energy production, improving food security, and solar desalination. In her doctoral work she conducted research on nanomaterial made of silicon, which is widely available and could transform computers and cell phones into more energy-efficient gadgets.

Mita received the Green Talents award, which gave her the opportunity to study carbon dioxide sequestration during her two-month research stay at the Technical University of Munich, Germany. After-

wards, she worked on mesostructured earth abundant materials for fuel generation at the California Institute of Technology, United States of America. Mita was awarded a Postdoctoral Fellowship by Natural Sciences and Engineering Research Council of Canada in 2014 to carry out her work at Caltech.

- 2019 Dalhousie University President's Research Excellence Award
- 2019 Selected to represent the element silicon in the International Union of Pure and Applied Chemistry (IUPAC) in celebration of the International Year of the Periodic Table
- 2017 Top 150 Canadian Women in STEM, list by hEr_VOLUTION organisation

Research focus: nanomaterials for renewable energy

Dr Jae Wook CHUNG

Republic of Korea

PhD in Water Technology

UNESCO-IHE, Delft Institute for Water Education, the Netherlands

Jae Wook wants to make sustainable water development a reality in less developed communities. He devoted his graduate studies to the idea that new technology should be developed based on locally available resources, pointing out that while there are several commercial decentralised water treatment units that utilise advanced technologies, they are far too expensive for the people who truly need them. Also, the low-cost appropriate technologies such as biosand filtration, ceramic filter, solar disinfection, and coagulation-chlorination have limited efficiency on viruses.

This inspired Jae Wook's PhD research, titled, "Removal of viral contaminations by hydrothermal carbonisation (HTC) materials in water treatment". His studies focus specifically on evaluating low-cost carbonaceous material as a virus adsorbent in water treatment.

2013



Research focus: sustainability hacking and system change for socio-environmental impact

Dr Hector DE LA HOZ SIEGLER

Colombia

PhD in Chemical Engineering

Current position: Assistant Professor at University of Calgary, Canada

Hector's academic approach focuses on the optimisation and intensification of bioprocesses through the systematic control of the cellular environment, with application to the production of chemicals, clean energy, and functional foods. He believes that industrial biotechnology has the potential to become the core processing technology to create commodities needed in society.

- 2016 US Provisional Patent US62293132. Biomass Production in Alkaline Systems
- 2011 Member of the Association of Professional Engineers and Geoscientists of Alberta
- 2007 Member of the Canadian Society for Chemical Engineering

2013



Research focus: microalgal bioprocessing and other biological and biomimetic systems for carbon capture, reuse, and permanent sequestration

2013



Dr Huihui HUANG

China

PhD in Microelectronics and Solid-State Electronics

Current position: Associate Professor at Hunan University, China

Huihui's current research aims to understand and control the carrier transports in low dimensional materials for thermoelectrical and photoelectrical conversion technologies. After receiving the Green Talents award, he began working as a postdoctoral research fellow at the Wake Forest University, United States of America, and led a team focused on fabricating high performance flexible thermoelectric batteries with wide application prospects in wearable electronic technology.

- 2014 Excellent Doctoral Dissertation granted by Hubei province of China
- 2011 Excellent Doctoral Student granted by the Ministry of Education of China

Research focus: design of low dimensional materials and devices for energy harvesting

2013



Alexandr ISCENCO

Moldova

MSc in Environmental and Natural Resource Economics

Current position: Co-founder and Strategy and Research Coordinator at Moldovan Environmental Governance Academy (MEGA), Moldova

Alexandr's research focuses on the use of gamification and economic incentives to stimulate eco-friendly behaviour, as well as on the contribution of citizens and organisations to sustainable development and environment protection in cities, regions, or countries.

After receiving the award he continued his research at the Institute of Ecological Economics in Berlin and established the Moldovan Environmental Governance

Academy (MEGA) in Moldova. He has earned certificates from several universities and was awarded the Klaus Toepfer Fellowship from 2015 to 2017. Alexandr is also the co-founder of 3D Magic Makers.

- 2019 Energy Globe World Award, category Youth
- 2015 National winner and international finalist in the ClimateLaunchpad competition by Climate-KIC
- 2014 Youth Award from Ministry of Youth and Sport, Moldova

Research focus: synergy of psychology, technology and ecology for sustainable development

Asal IBRAHIM

Jordan

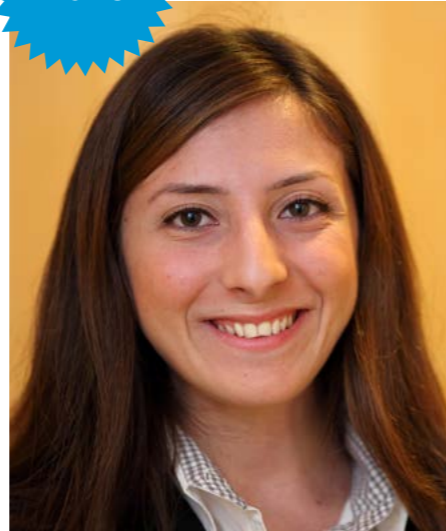
MSc in Renewable Energy and Sustainable Development

Current position: Senior Consultant at DNV GL, United Arab Emirates

Asal previously worked as a project manager for Clean Energy Concepts, Jordan. Her main focus of experience is on solar PV and thermal CSP, and she is responsible for evaluating solar PV project opportunities and conducting feasibility studies and proposals. Besides her work, she also mentors schoolgirls to become involved in science and research fields.

- 2014 TechWomen Award from the US Department of State, recognising women in STEM

2013



Research focus: solar energy

Dr Ali KHARRAZI

Japan

PhD in Sustainability Science

Current position: Assistant Professor at University of Tokyo, Japan

As a PhD Researcher at the Graduate School of Public Policy in Japan, Ali held a keen interest in sustainability science, data-intensive research, ecological economics, and science, technology and society. Ali has set himself the challenge of trying to clarify sustainability in numbers. With this quantitative approach, he aims to guide policy and decision-making in that field. His work contributes to bridging the gaps between science and policy-making, which are often major barriers to sustainable development. Ali has made several research visits to countries including the United States of America, Russia, Austria, and Germany. He also held the post of Research Assistant at the Advanced Systems Analysis Group, International Institute of Applied Systems Analysis (IIASA), Austria.

- 2015 World Social Science Fellow Award, International Social Science Council

2013



Research focus: Sustainable Development Goals (SDGs), resilience, water-energy-food nexus, trade, water, and energy networks, big-data for sustainable development

2013



Dr Ngoc Lieu LE

Vietnam

PhD in Chemical and Biomolecular Engineering

Current position: Lecturer at the School of Biotechnology at International University, Vietnam National University, Ho Chi Minh City, Vietnam

Ngoc Lieu's research has covered a wide range of interdisciplinary research fields focusing on the areas of energy generation from renewable sources such as biofuels and ocean energy, wastewater treatment to be recycled and/or to reduce environmental impacts, utilisation of food waste or by-products as a resource to produce value-added products, and utilisation of under-valued agricultural plants to produce biodegradable materials to replace plastics.

Her honours include the IES Prestigious Engineering Achievement Award from The Institution of Engineering in Singapore in 2010 in recognition of an outstanding engineering project which has made significant contributions to Singapore's development, along with other national awards. She was also selected to present her findings on breaking the wall of green energy at the final Falling Walls Lab Competition in Germany in 2014. She was recently invited as a speaker for speeches in Germany, United Kingdom and Singapore.

2019 National Finalist of 2019 ASEAN-US Science Prize for Women

Research focus: membrane materials and technologies for water and energy sustainability

2013



Jun Wei LIM

Singapore

PhD Student in Environmental and Water Resources Engineering

Department of Environmental and Water Resources Engineering, Nanyang Technological University, Singapore

After earning a Bachelor's Degree in Chemistry and Biological Chemistry at the Nanyang Technological University, Jun Wei went on to study Environmental Engineering with a focus on Sustainable Energy. During the course of her doctoral studies, she attended numerous international conferences and earned various awards for her work in energy recovery through anaerobic digestion.

Jun Wei's research is especially remarkable in that her project foresees the

diversion and separate treatment of waste and wastewater in each household, instead of adopting conventional, centralised urban water treatment systems. Through a low-flush and no-mix toilet, fresh water used for flushing can be significantly reduced. As urine (yellow water) and faeces (brown water) differ substantially in their composition of nutrients, treating them separately allows maximum nutrients and energy recovery from the respective wastes. This concept of treating waste and wastewater locally greatly decreases the dependency on fresh water. Jun Wei's work on decentralised and anaerobic treatment of domestic wastewater provides a major contribution to the development of sustainable cities in the future.

Research focus: optimisation of an anaerobic co-digestion process of brown water and food waste for clean energy recovery

Congying LI

China

PhD Student in Hydrology and Water Resources Science

University of Melbourne, Australia

Congying's research in the field of ecohydrology is about assessing the effect of catchment-wide implementation of stormwater control measures on urban streamflow.

2011-2013 Erasmus Mundus Scholarship (Category A), funded by the European Union, for MSc study in Europe

2015-2019 Melbourne Research Scholarship for PhD study in Australia

2013



Research focus: urban ecohydrology, sustainable urban stormwater management, waterway ecosystem protection, and statistical modelling

Dr Dânia Elisa C. MAZZEO MORALES

Brazil

PhD in Biological Sciences

Current position: Postdoctoral Research Fellow at the University Estadual Paulista (UNESP), Brazil

Dânia's academic work focuses on the investigation of the bioremediation potential to detoxify sludge from Water and Wastewater Treatment Plants (WTP and WWTP). She aims to discover ways to decontaminate sewage sludge and sludge from water treatment plants, providing more sustainable and safe reuse for these wastes, especially for agricultural purposes.

The Green Talents award provided an attractive platform and helped her to make valuable contacts with professionals, such as environmental managers and agriculturalists who could benefit from her work. The award represented an exciting experience, which was followed by São Paulo Research Foundation (FAPESP) and Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES), two

of the most important research agencies in Brazil, funding her postdoctoral projects.

2015-2018 Postdoctoral Fellowship São Paulo Research Foundation (FAPESP)

2014 Award in Research and Technological Innovation, Semifinalist, National Water Agency, Brazil

2013



Research focus: low cost and environmentally friendly technologies for detoxifying sewage sludge and sludge from water treatment plants

2013



Bruno MONTEFERRI

Peru

MPhil in Conservation Leadership

Current position: Director of Conservamos por Naturaleza, Peru

Bruno's mission is to bring sustainability debates to a wider mainstream audience through a citizen-led movement that pushes for policy reforms.

In 2012 he founded Conservamos por Naturaleza, a platform that supports grass-roots conservation initiatives and empowers citizen-led projects that create positive impacts in communities. His engagement includes the organisation of collective action, from national beach clean-up to campaigns involving 7.000 people in reforestation efforts based on crowd-sourcing and crowd-funding schemes. In collaboration

with the National Surfing Federation he was able to pass the first law in the world focused on the protection of waves.

Research focus: designing and implementing laws and policies for biodiversity conservation, sustainable management of fragile ecosystems, protection of endangered species

2013



Dr Intan Suci NURHATI

Indonesia

PhD in Earth and Atmospheric Sciences

Current position: Researcher at the Indonesian Institute of Sciences (LIPI), Indonesia

Intan aims to figure out the long-term effects of human activities on climate change and the environment by studying natural archives, such as corals and trees. The mission of her scientific approach is to contribute to a global collective effort to build resilient societies with sensible sustainable development. Intan is also involved a lead author in the forthcoming IPCC's Sixth Assessment Report on Working Group I (The Physical Science Basis).

During her research stay at GEOMAR in Kiel, Germany, Intan studied signatures

of anthropogenic climate change on Indonesian seas over the past centuries by focusing on geochemical signals of coral skeletons. Corals build annual layers of calcium carbonate as they grow. The chemistry of this material locks in environmental conditions and makes it possible to track past changes such as temperature, rainfall, and ocean acidification.

- 2019 National Geographic Women of Impact
- 2019 74 Ikon Pancasila by the Government of Indonesia
- 2018 LIPI Young Scientist Award by the Indonesian Institute of Sciences (LIPI)
- 2014 Best Young Scientist award by the IOC Sub-Commission for the Western Pacific, UNESCO

Research focus: climatology and oceanography

Dr Umarah MUBEEN

Pakistan

PhD in Biochemistry and Molecular Biology

Current position: Postdoctoral Researcher at Max Planck Institute of Molecular Plant Physiology (MPIMP), Germany

Understanding of the growth signalling in the model green alga can pave the ways to design and regulate the cellular metabolism for efficient utilisation of microalgae as photosynthetic factories. Umarah is currently exploring how signal transduction governs the growth and metabolism in the green alga, *Chlamydomonas reinhardtii*.

Umarah received a fellowship from the International Max Planck Research School (IMPRS) to continue her research as doctoral student and pursued her work in the field of experimental systems biology. In recognition to her doctoral work at MPIMP, lately, she received the Jeff Schell Award 2019.

2013



Research focus: regulation of cellular growth signalling in *Chlamydomonas*

Dr Anthony OYEOGBE

Nigeria

PhD in Agronomy

Current Position: Senior Lecturer in Agronomy and Environmental Management at Benson Idahosa University, Nigeria, and Research Associate at the Faculty of Agricultural and Environmental Sciences at University of Rostock, Germany

In his research, Anthony focuses on the need for a global shift from current farming practices to sustainable agriculture systems, capable of providing both significant productivity increases and ecosystem services.

- 2014 Fourth Climate Change Development in Africa Conference 'Africa can Feed Africa now'

- 2015 EAGE-First Proximal Sensing Supporting Precision Agriculture Conference
- 2014 Ninth Africa Development Forum

2013



Research focus: agroecosystem sustainability, sustainable agronomy, precision/digital agronomy

2013



Dr Shu-Yuan PAN

Taiwan, China

PhD in Environmental Engineering

Current position: Assistant Professor at National Taiwan University, Taiwan, China

Shu-Yuan was awarded the Young Scholars Fellowship (the Einstein Programme) by the Taiwanese Ministry of Science and Technology in 2019 and the Honorary Member by the Phi Tau Phi Scholastic Honour Society (2016). His current research group focuses on the GREAT (Green Research for Environmental and Agricultural Technologies) work, including (1) valorisation of agricultural waste by energy-efficient electrokinetic separation processes, (2) development of advanced waste-derived materials in green infrastructure for enhanced removal of nutrients

from stormwater, and (3) optimisation of food-water-energy-land nexus by spatial life cycle assessment.

He is the author of a book entitled "CO₂ Mineralization and Utilization", published by Springer in 2017 and holds seven issued patents and has four more pending.

Research focus: precision separation, agriculture and the environment, water-energy-food-land nexus, circular bioeconomy

2013



Dr Paulo SAVAGET

Brazil

PhD in Engineering

Current position: Assistant Professor at the University of Durham and Researcher at the University of Oxford, United Kingdom

Paulo has over 10 years of professional experience, working either as a lecturer, consultant, entrepreneur, or researcher committed to finding innovative solutions towards a more socially inclusive and environmentally resilient world. As an entrepreneur, Paulo co-founded an award-winning start-up, which received funds from a Brazilian innovation grant to develop an LED solution for public lighting. As a consultant, he worked on multiple projects, including for an intergovernmental organisation (i.e. OECD), several large companies of dif-

ferent sectors in Latin America, non-profits, and government agencies. He has taught several courses at Fundação Dom Cabral, the best business school in Latin America, where he is now a Visiting Lecturer; tutored at the Judge Business School, University of Cambridge; and has been committed and actively engaged with social entrepreneurship in Latin America and Africa.

He has been granted the IBM Business of Government Award and the Oldham Award from the University of Sussex, and has received multiple scholarships for his studies, such as from the Gates Trust, the Foreign and Commonwealth Office of the United Kingdom, and the Brazilian Council for Science and Technology.

Research focus: sustainability hacking and system change for socioenvironmental impact

Dr Divya PANDEY

India

PhD in Environmental Science

Current position: Research Associate at Stockholm Environment Institute, University of York, United Kingdom

Divya's research assesses the sustainability of cultivation practices and stigmatises the carbon footprints of different agricultural systems in the Indo-Gangetic plains.

She aims to identify new practices, to gain better economic returns, conserve resources, and help manage global warming more effectively, while also improving those currently in place. She is also investigating the impact of ozone pollution on carbon sequestration in cropland soils.

- 2015 Leibniz DAAD Postdoctoral Fellowship Leibniz Centre for Agricultural Landscape Research (ZALF)
- 2014 Indian Science Congress Association's Young Scientist Award in Environmental Sciences

2013



Research focus: interaction of agriculture with climate change, assessing ozone risk on soil carbon sequestration

Dr Ivan SUDAKOV

Russian Federation

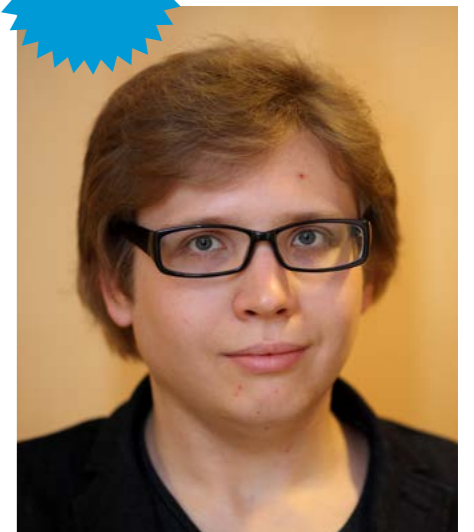
PhD in Applied Mathematics

Current position: Assistant Professor at the University of Dayton, United States of America

Ivan has a strong commitment to interdisciplinary interaction between mathematics and climate science and works to develop a nonlinear theory of climate systems. By improving projections his research offers important contributions to understanding the climatological and ecological role of sea ice in the climate system.

Ivan has been awarded several prestigious fellowships, such as the Isaac Newton Institute Visiting Fellowship, the Ed Lorenz Postdoctoral Fellowship and the Nansen Fellowship.

2013



Research focus: climate, environmental, statistical, and nonlinear physics

2013



Tayebah ZINATI SHOA

Iran

PhD Student

Technical University of Berlin, Germany

Tayebah is looking to use her knowledge and creativity to improve and help to further sustainability in an often overlooked, but important, sector: Water Resource Management. She has set herself the goal of using her expertise in Water Resource Engineering to think up new technologies that help to discover, use, and distribute water resources more efficiently and in a sustainable manner.

Research focus: integrated water resources management, with the goal of developing innovative water resource management technologies in urban areas

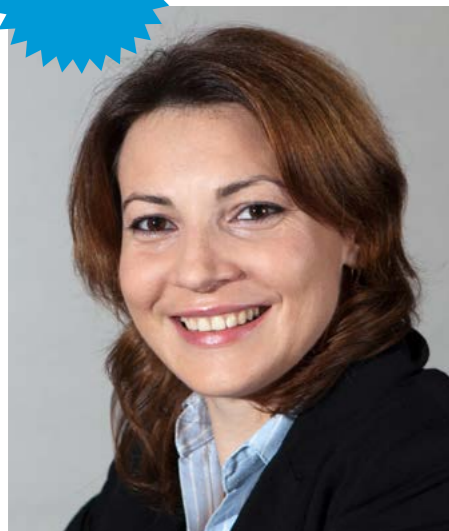
GREEN TALENTS

2012

Applications total	403
Application countries	68
Winners	25



2012



Dr Alina Mariana BALU

Romania

PhD in Fine Chemistry

Current position: Assistant Professor at Department of Organic Chemistry, University of Córdoba, Spain

A young leader in the field of Green Chemistry, Alina is optimising processes for biomass valorisation, environmental remediation, and the production of advanced second generation biofuels. Alina combines her ingrained sense of sustainability with a PhD in Fine Chemistry and an extremely strong academic record in analytical, physical, and organic chemistry. Her work focuses on alternative and greener methodologies in chemistry, including novel technologies for materials preparation, the production of biofuels,

and photocatalysis – a greener alternative for the production of chemicals and energy.

As part of her PhD thesis, Alina brought together three important disciplines – nanomaterials, energy, and environment – and led a multidisciplinary team to develop more sustainable processes for the preparation of supported nanoparticles. Alina and her team prepared and optimised green designer nanomaterials for various energy and environmental applications. This included the production of advanced second generation biofuels and high added-value chemicals as well as biomass valorisation and environmental remediation.

Research focus: green chemistry, materials science, heterogeneous catalysis, biomass valorisation

2012



Dr Viktor BRUS

Ukraine

PhD in Solid State Electronics

Current position: Project leader at the Center for Polymers and Organic Solids of the University of California Santa Barbara, United States of America

Viktor holds a PhD in Solid State Electronics and was a Georg Forster Postdoctoral Fellow at the Helmholtz-Center Berlin, Germany. With a background in semiconductor physics and material science, he is helping to develop a new generation of electronic and photovoltaic devices. After receiving the Green Talents award in 2012, Viktor continued his research as Assistant Professor and Postdoctoral Fellow at Chernivtsi University, Ukraine and the University of California Santa Barbara,

United States of America. He received a scholarship from the President of the Ukraine in 2013 and became an editorial board member for 'Scientific Reports' (Nature Publishing Group, London, United Kingdom) in the field of electronics, photonics, and device physics.

- 2018 American Chemical Society (ACS) Editors' Choice Award
- 2015 Outstanding Reviewer for 'Materials Science and Engineering B' and 'Solar Energy' (Elsevier)
- 2014 Georg Forster Postdoctoral Fellowship from Alexander von Humboldt Foundation

Research focus: materials science, physics of semiconductors and semiconductor devices

Dr Daria Camilla BOFFITO

Italy

PhD in Industrial Chemistry

Current position: Assistant Professor in Chemical Engineering at Polytechnique Montréal, Canada

Daria's research targets process intensification of heterogeneous catalytic processes to transform biomass into chemicals and fuels. She also adopts ultrasound to synthesize catalysts and advanced materials. Daria's research focuses on the significance of biofuels as an alternative to fossil fuels, especially non-food biomass materials. Besides research, Daria has co-authored and published a book in 2015 on how to write scientific papers and prepare presentations and posters and provides guidance for professors, students, and other researchers in the STEM fields (Science Technology Engineering Mathematics).

- 2014 Natural Sciences and Engineering Research Council of Canada (NSERC) Banting Postdoctoral Fellowship, Canada
- 2013 PBEEE (Programme de Bourses d'Excellence pour Étudiants Étrangers) Excellence Fellowship Programme for Foreign Students by the government of Québec, Canada

2012



Research focus: intensification of processes in liquid phase with heterogeneous catalysts, sonochemical synthesis of particles

Dr Suraphon CHAIWONGSAR

Thailand

PhD in Cellular and Molecular Biology

Current position: Vice President for Research and Academic Services at Rajamangala University of Technology Lanna, Thailand

Suraphon's academic approach focuses on community development, climate change mitigation, and adaptation for the agricultural sector. His interests include rice breeding, especially phytochemical methods. Suraphon has broad scientific experience in eco-efficient farming, and his research addresses Thailand's three key agricultural challenges: achieving economic sustainability in the face of low profitability, falling farm-gate prices, and low productivity.

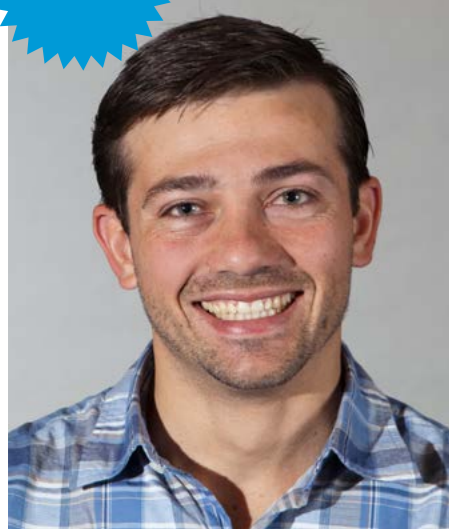
Suraphon has coached his students to compete in different community development projects hosted by Red Bull or Siam Commercial Bank, which they have won several years in a row.

2012



Research focus: climate change mitigation and adaptation for the agricultural sector

2012



Dr Bernardo DEL CAMPO

Uruguay

PhD in Mechanical Engineering and Biofuels

Current position: President of Advanced Renewable Technology International Inc., United States of America

Bernardo's academic approach focuses on activated carbon and biochar production from biomass feedstock. Biochar is a high-carbon by-product from the conversion of biomass to biofuels. It can be added to soil to improve water quality, increase crop yields, and sequester carbon dioxide in the soil for centuries.

Bernardo's innovative computer-automated tool for monitoring carbon dioxide emissions makes it possible to assess the storage shelf life of agricultural biomasses

and biochar stability. As a scientist, activist, educator, and proven innovator in biofuel processes, Bernardo is leading the way to make biofuel production even greener.

2013 Founder and President of Advanced Renewable Technology International Inc.

Research focus: activated carbon and biochar production from biomass feedstock

2012



Dr Alexander GOLBERG

Israel

PhD in Bioengineering

Current position: Associate Professor at the Tel Aviv University, Israel

Alexander's research focuses on offshore biorefineries. During his doctoral studies he developed advanced biotechnologies and bioengineering products to advance health and environmental engineering. His PhD thesis was a breakthrough in the production of bioelectricity from the electrolysis of biological matter and received worldwide media coverage. After graduating he began his postdoctoral work at the University of California, Berkeley and Harvard Medical School, Boston, United States of America.

- 2014 Robert B. Lindberg Award and Medal, America Burn Association
- 2013 Gordon Research Seminar on Tissue Repair and Regeneration
- 2013 ISES Abraham Kogan Session Lecture Award on Renewable Energy

Research focus: offshore biorefineries

Dr Alexandros GASPARATOS

Greece

PhD in Ecological Economics

Current position: Associate Professor of Sustainability Science at the Institute for Future Initiatives (IFI), University of Tokyo, Japan

Ecological economist Alexandros uses his multi-disciplinary depth to drive green growth. He has conducted research on various different topics, including sustainability assessment, energy policy, and urban metabolism to biofuels, food security, and ecosystem. As a postdoctoral researcher at the University of Oxford's Biodiversity Institute, Alexandros conducted interdisciplinary research on ecosystem services and developed mechanisms for measuring and valuating these services. He has been exploring how the ecosystem services approach can be used to frame, assess and convey the direct and indirect impact of biofuel production.

Alexandros's current research focuses on the development, refinement and application of sustainability assessment and ecosystem services valuation tools. Alexandros has applied these tools in different topics such as biofuels, food/energy security, energy policy, green economy, natural disasters, and urban metabolism, in geographical contexts as diverse as Brazil, Ghana, Indonesia, Japan, Kenya, Malawi, Mozambique, Philippines, Swaziland, and the United Kingdom.

2012



Research focus: sustainability assessment and ecosystem services valuation

Dr Dongdong GU

China

PhD in Material Processing Engineering

Current position: Professor at the Nanjing University of Aeronautics and Astronautics, China

Dongdong has a keen interest in laser-based additive manufacturing and 3D printing (AM/3DP) of high-performance materials. With the aid of advanced laser technology, he is developing a clean, green, non-waste industrial process known as rapid manufacturing/remanufacturing. His research has made important contributions by developing processes that save in both energy and material wastage.

- 2015 Top-Notch Young Talents Programme of China
- 2015 Second Class Award for Research Excellence in Natural Sciences, Ministry of Education China
- 2015 Second Class Award of the Science and Technology Awards of Jiangsu Province China
- 2009-2011 Alexander von Humboldt Research Fellowship at the Fraunhofer Institute (ILT), Germany

2012



Research focus: laser-based additive manufacturing and 3D printing (AM/3DP) of high-performance materials

2012



Oswald JUMIRA

Zimbabwe

MSc in Electrical Engineering

Current position: Group Head of Innovation Partnerships, Liquid Telecom Group, South Africa

Oswald's role is in designing, developing, and deploying Internet of Things (IoT) solutions across 15 African markets. His latest research interests focus on the Internet of Things, solar renewable energy, and low power wide area networks for IoT and cloud computing, working towards energy efficiency and energy harvesting techniques for embedded wireless communication systems.

He started working as an Executive Assistant to the CEO of Econet Services International, based in Zimbabwe in 2012, and he was a board member at Muzinda Hub, Zimbabwe from 2014 to 2015. In 2013 Oswald published a book with Dr Sherali Zeadally entitled "Energy Efficiency in Wireless Networks", which presents state-of-the-art energy-efficient techniques, designs and implementations that pertain to wireless communication networks.

Research focus: Internet of Things, solar renewable energy

2012



Dr Sabaa Ahmad KHAN

United Kingdom

PhD in Law/International Environmental Law

Current position: Attorney Member of the Barreau du Québec, Canada and Senior Researcher at the Center for Climate Change, Energy, and Environmental Law, University of Eastern Finland, Finland

Sabaa holds a Doctorate in Law with specialisation in International Environmental Law from the Faculty of Law at McGill University where she was an O'Brien Doctoral Fellow of the Centre for Human Rights and Legal Pluralism and Member of the Labour Law and Development Research Laboratory. Her research focuses on the interaction between environmental, trade and labour law systems in the context of transboundary movements of ICT commodities and wastes, global recycling chains and Arctic climate change.

Sabaa is Principal Investigator of the Academy of Finland funded project 'Forging an Arctic future through international chemicals control' (2018-2021) and Consortium Researcher of the Academy of Finland and Strategic Research Council funded project 'Sustainable drug discovery and development with end-of-life yield' (2018-2023).

Sabaa's international and national advisory mandates include appointments to the NAFTA Advisory Council on the Environment (Government of Canada, 2018), the Joint Public Advisory Committee of the North American Commission for Environmental Cooperation (2017-2019, elected Chair: 2019), and the United Nations Expert Group on Legal Frameworks for Chemicals and Waste Management (2017-2018).

Research focus: international environmental and trade law, Arctic governance, short-lived carbon pollutants, climate change law

Dr Joni JUPESTA

Indonesia

PhD in Management Science and Technology

Current position: Senior Researcher at Sinar Mas Agribusiness and Food, Indonesia

As a Senior Researcher at one of the largest palm oil producers in the world, Joni is working on life cycle assessment (LCA) to address the environmental issues in the agricultural sector (greenhouse gas emissions, water use efficiency, biodiversity, and ecosystem changes). He is also active as Board of Director for Indonesian Life Cycle Assessment Network (ILCAN) and Lead Author for the forthcoming Intergovernmental Panel on Climate Change (IPCC) 6th Assessment Report on Working Group III (Climate Change Mitigation).

One of the world's major emerging economies, Indonesia changed its status from net oil exporter to net oil importer in 2004 and was responsible for about five percent of global greenhouse gas emissions by 2005. It boasts the world's largest palm oil industry but faces massive deforestation

and big questions about the sustainability of its growth. As Indonesia's transition to a low-carbon economy takes on increasing urgency, Joni is helping drive its green-growth evolution.

Formerly a JSPS-UNU Postdoctoral Fellow at the United Nations University, Joni contributes to policy briefs on green economic growth, climate change governance, and poverty alleviation in Indonesia, which draws on his multidisciplinary research across the forestry, agriculture, and energy sectors.

Research focus: transition to green growth in emerging economies with focus on Indonesia

2012



Dr Aung Ko Ko KYAW

Singapore

PhD in Electrical and Electronic Engineering

Current position: Associate Professor at Southern University of Science and Technology, China

In his research, Aung focuses on the design, architecture, and fabrication of excitonic solar cells. His academic approach is a significant contribution to the future economic viability and sustainability of solar energy. Within the scope of the Green Talents programme, he joined the Max Planck Institute for Polymer Research (MPIP) in 2013. Thanks to his research stay in Germany, he was able to initiate a collaborative study between the University of California Santa Barbara (UCSB) and MPIP. His prize-winning PhD work led him to a postdoctoral fellowship under Nobel Laureate Professor Alan Heeger at UCSB.

2017 Recipient of Young Thousand Talents Programme, China

Research focus: perovskite solar cells, organic solar cells, thermoelectric generators

2012



2012



Dr Yuan LI China

PhD in Physics

Current position: CEO at Benewake Ltd. Co. Beijing, China

Yuan has been working on optoelectronics field for over ten years and started up a technical company in 2014, called Benewake Ltd. Co. The company concentrates on LiDAR (light detection and ranging) for smart products, making it available in obstacle and slam avoidance for drones (unmanned aerial vehicles, UAV), robots, and driverless cars (advanced driver-assistance systems, ADAS). With his scientific work, he is leading the development of the next generation of LiDAR (called DE-LiDAR), which is 10 millimetres in size, weighs 100 grams, has a range of 100 metres and an all-weather applicability.

Yuan has also published the book "Three Dimensional Solar Cells based on Optical Confinement Geometries".

2016 DE-LiDAR won the Demo God award at the Demo China Summit

Research focus: LiDAR for drones (UAV), robots, and driverless cars (ADAS)

2012



Dr Sarah Louise NASH United Kingdom

PhD in Political Science

Current position: Postdoctoral Researcher at the Institute for Forest, Environment and Natural Resource Policy (InFER), University for Natural Resources and Life Sciences, Austria

Sarah is the holder of a Marie Skłodowska-Curie Individual Fellowship of the European Commission for the project CLIMACY (Climate Diplomacy and Uneven Responses on Climate Change and Human Mobility), with the project running from March 2020 for two years. Her first book "Negotiating Migration in the Context of Climate Change. International Policy and Discourse" was published in 2019 with Bristol University Press.

During her research stay in Germany, she established contact with experts in her academic field. The following year she received a scholarship from the German Academic Exchange Service for her PhD at the University of Hamburg, where she defended her thesis on the topic of international policymaking around the climate change and migration nexus in January 2017.

2016-2017 Mercator-IPC Fellow at Istanbul Policy Center (IPC), Sabanci University, Turkey
2016 Visiting Scholar at the Institute for Hazard, Risk and Resilience, Durham University, United Kingdom

Research focus: climate change politics and policy, climate change and human mobility

Dr Rachel MUIGAI Kenya

PhD in Civil Engineering

Current position: Senior Lecturer at Department of Civil Engineering Science, University of Johannesburg, South Africa

In her award-winning research, Rachel focuses on practical design and construction solutions to minimize the cost, energy requirements, and environmental impact of South Africa's infrastructure. As part of her PhD work, she developed a model that uses secondary and recycled materials for buildings as sustainable alternative to raw materials.

2012



Research focus: sustainability of construction (Green Building), durability design of reinforced concrete structures, service life modelling, concrete deterioration, non-destructive testing techniques

Dr Muhammad Farrakh NAWAZ Pakistan

PhD in Environmental Sciences

Current position: Assistant Professor at the Department of Forestry and Range Management, University of Agriculture in Faisalabad, Pakistan

In his studies, Muhammad investigates the environmental services of trees, such as climate change mitigation through carbon sequestration by integrated land use and the impact of mechanised operations in forests. His research aims to promote sustainable forestry management in his home country.

2017 Australian Endeavour Award (Scholarship)
2014-2015 Research Productivity Award of the Pakistan Council for Science and Technology
2007 Overseas scholarship for pursuing PhD in France from the Higher Education Commission, Pakistan

2012



Research focus: forestry and agro-forestry, climate change, forestry and environment, afforestation of degraded lands

2012



Dr Antonio Otavio PATROCINIO

Brazil

PhD in Chemistry

Current position: Associate Professor at the Institute of Chemistry of Federal University of Uberlândia, Brazil

In his research, Antonio investigates molecular approaches to solar energy conversion and aims to find ways to boost the conversion efficiency of devices such as artificial photosynthetic devices for water splitting, CO₂ reduction, and biomass valorisation.

He explores the fundamentals of electron transfer processes and the excited state properties of metal complexes both in solution and on metal oxide surfaces for application in light-induced devices investi-

gates. Particularly, he is interested on how the chemical and physical properties of various materials affect the efficiency of the light-induced processes.

2016 Alexander von Humboldt Fellowship

2010 Brazil's Best Doctoral Thesis in Chemistry

Research focus: development of new materials and devices for solar energy conversion into electricity and fuel

2012



Raymond SIEBRITS

South Africa

MSc in Environmental and Geographical Science

Current position: Manager at Klein River Cheese, South Africa

Raymond's work focuses on water research, sustainability, and enterprise development.

His Master's thesis attracted the interest of South Africa's Water Research Commission, which then funded a team to further develop his work. He went on to gain valuable business development and enterprise building skills while working for a number of start-ups.

Research focus: food sustainability, water, climate technology, renewable energy, agriculture and business development

Dr Adam SCHRÖFEL

Czech Republic

PhD in Material Science

Current position: Full-time Staff Scientist at the Vlaams Instituut voor Biotechnologie (VIB), Belgium

Adam is finding nature-inspired solutions for some of the world's biggest challenges. He is applying his expertise in the life sciences to developing biosynthetic nanomaterials. In his research, Adam is trying to show that a deeper understanding of structures of biogenic materials and cellular energy production can lead to cleaner energy production, biodegradable materials and reduced soil and water contamination.

Adam, who helped build up the bionanotechnologies laboratory at VŠB-Technical University in Ostrava, Czech Republic focuses on biosynthesis, employing nature-derived processes to create nanomaterials. Unlike chemical approaches, it is low cost, energy efficient, and environmentally benign. His work has led to the synthesis of a functional nanomaterial containing

diatom silica shells that can be used in the catalytic removal of nitrate pollutants. It also has defence-related applications, such as the hydrolytic decomposition of extremely dangerous nerve agents.

2012



Research focus: biosynthesis of noble metal nanomaterials and nanoparticles by living organisms

Dr Anita SINGH

India

PhD in Botany

Current position: Assistant Professor at the Center of Advanced Study in Botany, Banaras Hindu University, India

Anita's research focuses on the assessment of physiological and biochemical changes in soil and plants and the synchronised detoxification of harmful reactive oxygen species by their antioxidant defence mechanisms under abiotic stress. She is now going to develop some strategies to reduce the impact of abiotic stress such as pesticide, drought and salinity on plant physiology by applying some viable techniques that can be easily implemented in the agricultural fields to reduce their toxic impact on plants.

As a postdoctoral researcher, she has also worked on nanotechnology by applying some nanonutrient like Zinc oxide and Copper(II) oxide to increase the yield and other metabolic activities of plants by increasing the nutrient efficiency of plants.

2013 & 2016 Best Presentation Award in the Seminar held by Indian Science Congress Association
2007 Alice J. Murphy Outstanding Award for Excellence in Research and Education

2012



Research focus: regulation of abiotic stress in plant system by applying some viable and sustainable techniques

2012



Dr Javier SOLANO

France

PhD in Electrical Engineering

Current position: Associate Professor at the Universidad Industrial de Santander, Colombia

With his research, Javier aims to create sustainable transport systems in an effort to reduce energy consumption and its environmental impact. In his PhD he proposed innovative energy management solutions for hybrid electrical vehicles and has successfully validated these control laws in real-time on a full-scale hybrid vehicle and in a freight train.

After his research stay at the Technical University of Berlin, Germany, he changed his research area and has been working

on rural electrification and micro grids since then.

- 2016 Invited Professor at University of Caen, Normandy, France
- 2015-2016 Organisation of Falling Walls Lab, Bucaramanga, Colombia
- 2013 Participation in Falling Walls Lab, Berlin, Germany

Research focus: energy consumption reduction in road and railway transport

2012



Dr Dhanya VIJAYAN

India

PhD in Natural Resource Management

Current position: Postdoctoral Fellow at Leibniz Centre for Agricultural Landscape Research, Germany

Dhanya's latest research focuses on tropical forest conversions and its impact on indigenous population with a special focus on Western Ghats in India. In her research she combines geospatial technologies together with livelihood assessments and participatory approaches.

Since 2016, Dhanya serves as a member of the Board of Directors at the Foundation for Environmental Research and Innovation, India. Besides, she has been a research fellow at the University of Bremen, Ger-

many, and the National Centre for Earth Science Studies, India.

- 2019 DAAD-Leibniz postdoctoral fellowship
- 2014 German Chancellor Fellowship from Alexander von Humboldt Foundation
- 2011 Young Geographer Award from National Association of Geographers, India

Research focus: sustainable natural resource management with a particular focus on river basin governance

Dr Supriya TIWARI

India

PhD in Botany and Environmental Science

Current position: Assistant Professor at Banaras Hindu University, India

Supriya's research focuses on mitigation of ozone-induced stress in plants in order to screen ozone-tolerant cultivars that can be useful to promote sustainable agriculture. With her studies she is helping her country offset potentially devastating yield losses by furthering the scientific community's understanding of the impact of ground-level ozone on plants.

- 2012 Young Scientist Medal by the Indian National Science Academy

2012



Research focus: mitigation of ozone-induced stress in plants to promote sustainable agriculture

Dr Komalirani YENNETI

India

PhD in Geography and Environmental Sciences

Current position: Lecturer and New Generation Network Scholar in the Faculty of Built Environment, University of New South Wales, Australia

Komali has extensive research, policy and advocacy experience in climate change adaptation and mitigation and energy, and is helping create sustainable communities and cities in the Asia Pacific. Her current research involves more than 25 government and industry partners as full-partners to co-create solutions for improving living conditions of people and to develop knowledge exchange partnerships for achieving the sustainable development goals.

Komali has served in research, advocacy and advisory capacities for The Energy and Resources Institute (TERI), Institute for Global Environmental Strategies (IGES), Das Deutsche Institut für Entwicklungspolitik (DIE), Chinese Academy of Sciences in China, LandCom University Roundtable in

Australia and the Commonwealth Youth Climate Network (CYCN). She is keen on early career researcher development, and is the founding chair of International Geographical Union's Young and Early-Career Geographers Task Force.

- 2016 Chinese Academy of Sciences President's International Fellowship Initiative (two-year research grant)
- 2016 National Natural Science Foundation of China (one-year research grant)

2012



Research focus: energy transitions and sustainable urbanism in the global south

2012



Dr Zilong ZHANG China

PhD in Human Geography

Current position: Deputy Director of Geography Department,
Lanzhou University, China

Already an established leader in the field of circular economy, geographer Zilong has helped Gansu Province in north-western China to become the nation's first official model for circular economy acceleration. China's rapid industrialisation has come at a high price – resource depletion, environmental pollution, and major ecosystem degradation. To turn this trend around, China has launched a green growth initiative. Zilong, a lecturer in Circular Economy at Lanzhou University, is part of the process, helping China's Gansu Province to

establish a new paradigm for sustainable economic growth and development.

His interdisciplinary research on circular economy implementation has won him not only several academic awards but also the co-authorship of the Master Plan for Developing Circular Economy in Gansu Province, made him the go-to man for transforming the conventional linear economy into an efficient, closed-loop system where resources are reused and recycled to sustain growth.

Research focus: industrial ecology and circular economy, coupled relationships between economic and environmental systems



GREEN TALENTS

2011

Applications total	331
Application countries	58
Winners	20



2011



Dr Ana Paula BORTOLETO

Brazil

PhD in Urban Environmental Engineering

Current position: Assistant Professor at the University of Campinas, Brazil

Ana's research focuses on life cycle assessment, social analysis, behaviour modelling and computational models using autonomous agents. Her experience has cultivated a comprehensive understanding of waste prevention, including regulations, technologies and individuals' behaviour. It engages mainly with psychological theories and life cycle assessment. Though her interests are broad, Ana is keen on the effects of consumer behaviour and public policies on solid waste management and in the manufacturing and product's design actively involved in this process.

In 2015 Ana published the book "Waste Prevention Policy and Behaviour", which outlines how waste prevention policies enter the private, domestic sphere, offering insights for generating behavioural change at the household level and, thus, moving larger communities towards sustainable waste management.

2013 International Climate Protection Fellowship from the Alexander von Humboldt Foundation, Germany

Research focus: life cycle assessment, social analysis, behaviour modelling, and computational models using autonomous agents

2011



Dr Cristian Guillermo GEBHARDT

Argentina

PhD in Engineering Science

Current position: Head of the Group 'Coupled Dynamical Systems' and Lecturer at the Institute of Structural Analysis, Leibniz University of Hannover, Germany

Cristian's academic approach focuses on coupled dynamical systems in wind energy. During his doctoral research, he developed a fully non-linear code to simulate the fluid-structure interaction of mechanical systems immersed in low-speed vortex-dominated flows. Using this tool, he predicted sub-critical, critical, and post-critical behaviour and aero-elastic instability margins for wind turbines.

One year after receiving the Green Talents award, he moved to Germany and worked for almost three years at Fraunhofer IWES as a research associate. Since July 2015, he has been the head of a research group at the Leibniz University of Hannover and gives lectures at undergraduate and graduate level.

2006 Best Graduate Award, National Academy of Engineering, Argentina

Research focus: coupled dynamical systems in wind energy

Dr Liudmila CHAMBERS (née NAZARKINA)

Russian Federation

PhD in Management

Current position: Principal Consultant at Verisk Maplecroft, United Kingdom

Liudmila's research focuses on growth strategies of entrepreneurial firms in the sustainable lifestyle industry. Sustainability entrepreneurs pursue a range of growth strategies, including organic and acquisitive growth, strategic alliances, franchising, and equity sales to strategic investors. However, some of these strategies, such as equity sales, are often perceived as a sell-out of sustainability values by organisational stakeholders. Liudmila is investigating the inconsistency demonstrated by many entrepreneurs by choosing growth strategies that make business sense but are incompatible with stakeholder expectations for a business with a sustainability-driven identity. Her research aims to provide recommendations as to the most sustainable ways of growing an entrepreneurial firm in the sustainable lifestyle industry.

During her PhD Liudmila was actively involved in facilitating the development of high-quality teaching cases to bring sustainability teaching to classrooms.

2011



Research focus: growth strategies of sustainability entrepreneurs

Dr Ting GUAN

China

PhD in Public Administration

Current position: Assistant Professor at School of Government at Beijing Normal University, China

Besides her position as Assistant Professor at the School of Government at Beijing Normal University in China, Ting is a Research Fellow at the Centre for Industrial Development and Environmental Governance at Tsinghua University in China. She has a solid understanding of the transformation process in China and has undertaken work in various research projects of that topic. After finishing her PhD in 2015, Ting was working at the Mercator Institute for China Studies in Germany as a visiting academic scholar. Later she was a post-doctoral researcher at the Institute of East Asian Studies, University of Duisburg-Essen, Germany, as well as at the School of Public Policy and Management at Tsinghua University, China.

2014 German Chancellor Fellowship and Humboldt Scholarship
2013 Global Governance 2022 Fellow, granted by the Robert Bosch Foundation

2011



Research focus: policy implementation, Global Governance, Sustainable Development Goals

2011



Dr Owen HORWOOD

South Africa

PhD in Water Resource Governance

Current position: Non-Executive Director at Johannesburg City Parks & Zoo and Specialist Advisor at Gauteng Provincial Government and South African National Biodiversity Institute, South Africa

Owen holds a PhD in Water Resource Governance, with his thesis addressing the challenge of implementing South Africa's national water policy particularly from a governance perspective. Green Talents offered him an exceptional opportunity for international interaction and knowledge exchange. Moreover, he had the chance to visit Heidelberg University's Centre for the Environment as a Research

Fellow. He presented his work at different conferences in London (2012) and Bonn (2013), and subsequently participated in the South African-German Year of Science collaboration. Owen has also lectured at the Gadjah Mada University, Indonesia, at the invitation of the United Nations University Institute for the Advanced Study of Sustainability.

- 2003-2005 Rhodes Scholarship South Africa-at-Large
- 2003 South African Association for Advancement of Science Medal
- 2000 Merck Gold Medal for Interdisciplinary Excellence

Research focus: environmental policy and governance with emphasis on integrated, sustainable natural resource management

Andrés IBÁÑEZ GUTIERREZ

Colombia

MSc in Construction

Current position: Professor at School of Architecture and Urban Design at National University of Colombia, Colombia

Andrés holds a Master's degree in Construction from the National University of Colombia, where he also works as a teacher in the fields of architectural design, technology, and eco-productive architecture. In his Master's thesis he developed a local green roof system, made out of recycled and locally sourced materials, with the aim to make Bogotá a more eco-friendly city. His research aims to develop tools to improve the assessment of eco-productive buildings.

Over the past years, he has worked alongside the World Green Infrastructure Network and the Colombian Network of Green Infrastructure RECIVE to promote building greening in cities, as an effective way of generating environmental services.

He successfully postulated Bogotá as the city host for the World Green Infrastructure Congress 2016 and launched THE-NEXT-GREEN Awards, a worldwide competition for green infrastructure.

2011



Research focus: eco-productive architecture

2011



Nnaemeka C. IKEGWUONU

Nigeria

MSc in Cooperation and Development

Current position: Executive Director Smallholders Foundation and Founder/CEO ColdHubs Ltd., Nigeria

Nnaemeka's research focuses on agricultural extension services and solar-powered refrigeration. For his master's thesis he wrote about the links between poverty reduction and sustainable environmental management.

After his participation in the forum, he began researching solar-powered cooling with his technical partners, the Institute for Air Handling and Refrigeration in Germany. His research led to the construction

of a prototype for a solar-powered cold room, specifically designed for smallholder farmers, wholesalers and retailers. Moreover, Nnaemeka is a farmer, innovator, leading social entrepreneur, and has received more than 20 awards during his professional and academic career.

Research focus: solar energy, batteries, inverters, air conditioning, cold room design and refrigeration

Dr Yangfan LI

China

PhD in Environmental Planning and Management

Current position: Professor in the College of the Environment & Ecology at Xiamen University, China

Yangfan studied Urbanisation, Environmental Change, and Sustainability at Nanjing University, China and Cornell University, United States of America. With his academic research, he aims to develop an early warning resilience system in urban coastal wetland areas. His goal is to help mitigating the impact of rapid urbanisation and global environment change, to influence political decision-making in China. Thanks to the Green Talents competition, he has gone on to work in the area of coastal resilience and integrated land-sea management.

- 2014 World Social Science Fellow on Sustainable Urbanisation II, elected and funded by the International Social Science Council (ISSC)

2011



Research focus: coastal resilience and land-water-biodiversity nexus, urbanisation and environmental studies, urban region and landscape ecology

2011



Dr Rafael LUQUE

Spain

PhD in Organic Chemistry

Current position: Professor in Organic Chemistry at the University of Córdoba, Spain

Rafael is particularly interested in recycling biomass residues and waste resources, such as food waste, for producing materials, chemicals and energy. Rafael's research is mainly applied in the field of advanced biofuels production, where he developed new ways to turn feedstock, such as waste frying foils, into fuels. His academic work has even resulted in the foundation of a spin-off company from the Organic Chemistry Department.

Rafael is a member of the Editorial Board of prestigious journals including Chemical Society Reviews (RSC), Catalysis Communications (Elsevier) and Sustainable Chemical Processes (Chemistry Central) as well as Editor-in-Chief of the Porous section of the journal Materials and Series Editor of Topics in Current Chemistry (Springer).

- 2013 RSC Environment, Sustainability and Energy Early Career Award from the Royal Society of Chemistry, United Kingdom
- 2011 Marie Curie Prize from Instituto Andaluz de Quimica Fina in Spain

Research focus: biomass/waste valorisation, nanoscale chemistry, heterogeneous catalysts

2011



Dr Pham Van QUAN

Vietnam

PhD in Environmental Engineering

Current position: Official in Human Resource Development at the Ministry of Industry and Trade, Vietnam

Pham is currently working as an official in Human Resource Development at the Ministry of Industry and Trade in Vietnam. His latest research focuses on climate change and energy in the field of industry and trade. Before that, he worked as a lecturer in the Environmental Engineering Department at Hanoi Architectural University, where he researched energy-saving techniques to mitigate climate change, involving his former university in Tokyo.

Pham previously focused on understanding and managing cities as comprehensive units, with a focus on the water-energy nexus. He is also interested in a broader range of issues, receiving financial backing from the government.

- 2012 Golden award for one of ten outstanding Vietnamese researchers, Ministry of Science and Technology, Youth Union Ho Chi Minh, Vietnam

Research focus: climate change and energy in the field of industry and trade

Dr Najwa OBEID PITOIS

United States of America

PhD in Environmental Engineering and Sciences

Current position: Water Resources Analyst at the Metropolitan Water District of Southern California, United States of America

Najwa's work focuses on water supply reliability planning in drought-prone Southern California, which currently relies on more than 50 percent in imported water for its water supply. She works with multiple local agencies assisting them in water supply reliability planning under uncertain future conditions. Her work also involves analysis of how integrated management of stormwater, recycled water, and groundwater can help increase local water resources reliability.

role of ecosystems for disaster risk reduction. She also spent a year as a Knauss Marine Policy Fellow at the National Science Foundation in Arlington, United States of America, working on the newly launched Coastal Science, Engineering, and Education for Sustainability programme, the goal of which is to support interdisciplinary research on the dynamic interactions between human behaviour, physical forces, and ecological processes in the coastal zone.

During her Green Talents research stay at the Environmental Vulnerability and Ecosystem Services Section at the United Nations University in Bonn, Germany, she conducted a study that focuses on how communities perceive and understand the

Research focus: integrated water resources management, water supply portfolio modelling and planning, water resources systems analysis

2011



Dr Dyllon RANDALL

South Africa

PhD in Chemical Engineering

Current position: Senior Lecturer at the University of Cape Town, South Africa

Dyllon is an accomplished South African Research Engineer. His PhD focused on developing a brine treatment protocol using a novel technology called Eutectic Freeze Crystallisation.

Dyllon has previously worked in consulting as a Process Engineer and on "Re-invent the Toilet Challenge", a project funded by the Bill & Melinda Gates Foundation. He is specifically focusing on sustainable sanitation and recovery of valuable nutrients from waste streams. His research stay in Germany also perked his interest in nutrient recovery research.

- 2020 Royal Society of South Africa Meiring Naude Medal
- 2019 University of Cape Town College of Fellows' Young Researcher Award

- 2019 Next Einstein Forum Fellow
- 2019 Eco-Logic Award (Silver)
- 2019 Institution of Chemical Engineers' Warner Prize
- 2019 Future Leaders - African Independent Research (FLAIR) Fellowship
- 2018 Greenovate Award for sustainable building solutions for the development of a greywater recycling system (supervised research project)
- 2018 Global Scalability Potential Award and First Prize in Clean Water & Sanitation (UNLEASH 2018)

Research focus: resource recovery from wastewater

2011



2011



Dr Alanna Jane REBELO

South Africa

PhD in Biology

Current position: Postdoctoral Researcher in the Conservation Ecology & Entomology Department at Stellenbosch University, South Africa

Alanna's research focus is on ecosystem services provided by wetlands, using a combination of applied remote sensing techniques, field measurements, and hydrological modelling. She is currently involved in research into the hydrological benefits of investing in ecological infrastructure, including alien clearing from mountain catchments, and wetland rehabilitation and revegetation.

A wetland ecologist by training, Alanna is a member of the International Society for

Wetland Scientists as well as a member of the local South African Wetlands Society, the Freshwater Ecosystem Network, and her local wetland forum is also part of the RoseAct NGO in Alexandra Township, Johannesburg.

- 2019 Bronze Award for the best botanical PhD in South Africa
- 2018 Vice-Rector Top 20 Award for postdoctoral researchers
- 2018 ConsoliDoc Award, Stellenbosch University, South Africa
- 2014-2016 Erasmus Mundus Grant, European Commission
- 2014 EUROSA Scholarship to pursue her doctoral studies in Belgium

Research focus: ecosystem services, valley-bottom wetlands, ecohydrology, remote sensing applications

2011



Dr Victor SIM

Singapore

PhD in Environmental and Water Resources Engineering

Current position: Head of Resiliency (ESD), Sustainability and Resiliency Office at Surbana Jurong, Singapore

Victor is a Process Engineer by training with deep expertise in state-of-the-art polymeric and ceramic membrane treatment systems. He is interested in the intertwined needs of social, economic, and environment concerns that include but are not limited to water, power, environmental, social, and security matters affecting the urban development and city landscape. He is tapping into Industrialisation 4.0 where digitalisation enables the interaction of multiple layers of data to generate insights and predictions.

He honed his technical and engineering skills when he was CH2M Singapore's (now Jacobs Engineering) lead process engineer for design considerations and process options for drinking water works (Choa Chu Kang and Woodleigh Waterworks) where he specialised in process option trade-off with disinfection criteria and by-products formation, equipment life-cycle analysis, and chemical systems. He also supported the construction of Singapore's third seawater desalination plant and Kranji NEWater Factory Expansion.

Research focus: design considerations and process options for drinking water systems

Dr Yatendra S. CHAUDHARY

India

PhD in Chemistry

Current position: Principal Scientist at the CSIR Institute of Minerals and Materials Technology, and Associate Professor at Academy of Scientific and Innovative Research, India

Yatendra's academic research focuses on solar fuels and nanomaterial. Among others he has designed enzyme semiconductor-based photocatalysts for visible light driven CO₂ reduction and H₂ production. He earned his PhD for the research work focused on nanostructured photocatalysts for solar-driven water splitting.

His research accomplishments in the area of nanomaterial and solar fuel research have brought him many recognitions such as the CSIR Young Scientist Award 2013 in the Chemical Sciences section from the Council of Scientific & Industrial Research (CSIR), India and the prestigious Marie

Curie Fellowship by the European Union (2010-2012).

Yatendra is a member of the editorial board of the Journal of Nanoscience and the International Journal of Photoenergy. Besides, he has edited a book "Solar Fuel Generation" which offers an overview of the promising approaches to solar fuel generation, including the direct pathways of solar H₂ generation and CO₂ photocatalytic reduction.

2011



Research focus: solar fuel generation and nanomaterial

Dr Rajeev Pratap SINGH

India

PhD in Botany

Current position: Visiting Research Associate at the University of Nebraska-Lincoln, United States of America

Rajeev did his PhD work at the Department of Botany of the Banaras Hindu University in India, where he examined how municipal sewage sludge can be used in land applications. Following this, he did his postdoctoral work at Universiti Sains Malaysia. Afterwards, he started to work as an assistant professor at the Institute of Environment and Sustainable Development at Banaras Hindu University. The Green Talents award was a turning point in his career, and the first international recognition for his research.

- 2016 Water Advanced Research and Innovation Fellowship (WARI)
- 2012 ProSPER.Net-Scopus Young Scientist Award in sustainable development from United Nations University, Tokyo and Scopus

2011



Research focus: solar fuel generation and nanomaterial

2011



Dr Bing XUE

China

PhD in Geography

Current position: Professor at the Chinese Academy of Sciences, China

Bing's research interests mainly focus on the interactions analysis on human-environmental system and climate change governance, based on the techniques of urban and environmental computing and employing the transdisciplinary and interdisciplinary approaches. For his PhD thesis, he studied the mechanisms of regional circular economy development.

Bing is currently serving as a Professor in Industrial Ecology and Sustainability Management as well as the Principal

Investigator of the Research Center for Industrial Ecology & Sustainability at the Chinese Academy of Sciences. He is also the Director of the Key Lab for Environmental Computation and Sustainability of Liaoning Province, China. Thus, he is a Research Fellow/Associate at the Institute of Advanced Sustainability Studies (IASS) Potsdam, Germany. He is also voluntarily serving in various organisations and scientific communities, and as a consulting expert for Chinese local governments.

- 2015 Selected as a member of the Youth Innovation Association at the Chinese Academy of Sciences
- 2013 International Climate Protect Fellowship by the Alexander von Humboldt Foundation

Research focus: industrial ecology, human-nature relationship, and sustainability governance in climate change and environment

2011



Dr Maribel ZAPATER PEREYRA

Peru

PhD in Environmental and Sanitary Engineering

Current position: Expert in water and wastewater technology at Latinka e.V., Germany

Maribel's research contributes to increase the quantity and quality of water resources, while guaranteeing a natural treatment and an appealing green space. Currently, she is working as an advisor in a sanitation and environmental Peruvian-German project that tries to find a solution for a vulnerable community in the surroundings of Lima. The project involves the implementation of ecosan technologies that could solve the lack of sanitation in the area.

In recent years, Maribel has taken on a new topic: social and environmental en-

trepreneurship. In late 2017 she co-founded an initiative in Peru called Tejiendo Puentes, which is an online platform that accelerates the visibility of social and environmental entrepreneurs. This way the entrepreneurs can be known at the national level (and sometimes international level), which increases their potential to solve more social and environmental problems.

- 2015 Top 20 Percent of the annual PhD cohort, the Netherlands
- 2010-2014 NATSYS-UPaRF Fellowship (Natural Systems for Wastewater Treatment and Reuse: Technology Adaptations and Implementation in Developing Countries - UNESCO-IHE Partnership Research Fund), the Netherlands

Research focus: sustainable water sanitation

Dr Sandra Patricia ZAPATA PORRAS

Colombia

PhD in Engineering

Current position: CEO at Ecoflora Cares S.A.S., Colombia

Sandra has been working at Ecoflora Cares S.A.S. since 2002 developing natural colour technologies for the food and personal care industries with an emphasis on sustainable and socially responsible environmental practices. Ecoflora Cares is a leader and pioneer in technological solutions development, bio-products, and services derived from biodiversity for food industries, cosmetics, personal and home care.

Sandra secured four international patent families on extraction and processing including: Genipa americana, Swinglea glutinosa, and Sapindacea family.

2009 Women in Science Award by L'Oreal-UNESCO

2011



Research focus: development of biodiversity-derived products for the food and personal care industries involving sustainable management, fair trade, and legal access

Dr Jin (Jenny) ZHOU

China

PhD in Environmental Engineering

Current position: Lecturer in Environmental Engineering, Department of Civil Engineering, Monash University, Australia

Jenny's research focuses on indoor pollutant dynamics, bioaerosols, and building sustainability. In her PhD thesis she improved life cycle assessments for the water industry in Singapore.

- 2016 Co-PI in Advanced Ventilation System for Tropical Urban Environment grant awarded by SINO-BCA
- 2016 Award from Alfred P. Sloan Foundation, Singapore
- 2012 Research Exchange Fellowship from the Lloyd's Register Foundation, Singapore

2011



Research focus: indoor environmental quality, cycle analysis, and risk assessment

GREEN TALENTS

2010

Applications total **234**
 Application countries **57**
 Winners **20**



2010



Dr Tirthankar BANERJEE

India

PhD in Environmental Science

Current position: Assistant Professor at Banaras Hindu University, India

During his doctoral research, Tirthankar quantified the source-specific contribution of aerosols and trace gases from a large industrial estate using several air quality models.

Being affiliated with the Institute of Environment and Sustainable Development at Banaras Hindu University, Tirthankar has continued his scientific research on satellite remote sensing of aerosols and trace-gases particularly over the Indo-Gangetic Plain of South Asia. Through measurements of atmospheric trace gases and aerosols from

various observational platforms, he aims to predict changes in atmospheric constituents and its repercussions on the regional to global climate. Tirthankar has very active and productive research collaboration with many research institutions across the world. His research group was a pioneer in identifying many contemporary environmental issues especially in identifying aerosols sources, aerosol transport and its health impacts over the region.

- 2019 Visiting Professor, Laboratory of Physico-Chemistry of the Atmosphere, University of the Littoral Opal Coast, Dunkerque, France
- 2015 Young Scientist Start-up Grant, Department of Science and Technology, Government of India

Research focus: aerosol-climate chemistry, satellite retrieval of aerosols, geospatial analysis, environmental health

Dr Sukalyan BHADRA

India

PhD in Chemistry

Current position: Senior Scientist at Inorganic Materials and Catalysis Division, Central Salt and Marine Chemicals Research Institute (CSIR), India

Sukalyan's research interests revolve around developing new methods for metal-promoted organic synthesis and asymmetric catalysis that lead to complex molecular structures in a sustainable manner.

After receiving the Green Talents award, he stayed in Germany for more than two years at Technical University Kaiserslautern as a Postdoctoral Associate. Subsequently, he moved to Chubu University, Japan, as a postdoctoral fellow of Japan Society for the Promotion of Science (JSPS). In 2016, he returned to India and joined Central Salt and Marine Chemicals Research

Institute (CSIR), Bhavnagar, to start his independent research career.

- 2016 DST-Inspire Faculty Award, Government of India
- 2013 JSPS Postdoctoral Fellowship, Japan
- 2009 Participation at the 59th Nobel Laureate meeting Lindau, Germany

2010



Research focus: sustainable organic synthesis

2010



Dr Jeanne DE WAAL

South Africa

PhD in Agriculture, Entomology and Conservation Ecology

Current position: Technical Manager at Philagro SA (Pty) Ltd., South Africa

Throughout her research career Jeanne focused on finding environmentally friendly solutions for pest management in commercial agriculture. The integration of these solutions at farm level ensures the safe and sustainable production of food to meet market requirements and help feed a growing population.

Jeanne was selected as one of the Top 10 Women in Science in Sub-Saharan Africa as part of the L'Oréal/UNESCO-Women in Science Programme. She holds numer-

ous bursaries and also a Golden Key Chapter Award for outstanding Academic Achievement. She was also selected as the best National Female Post Graduate Student as part of the National Department of Trade and Industry's South African Development Programme.

Research focus: integrated pest management, commercial agriculture, nematology, entomology, biological control

2010



Dr Zhen (Jason) HE

China

PhD in Environmental Engineering

Current position: Professor at the Department of Energy, Environmental and Chemical Engineering, Washington University in St. Louis, United States of America

Jason's interests include biological wastewater treatment, sustainable seawater desalination, and bioenergy production. He became Assistant Professor at the University of Wisconsin in 2009 and completed a postdoctoral training period at the University of Southern California. Since then, he has established a research programme in environmental biotechnology and was promoted to Associate Professor with tenure at Virginia Tech in 2013. In 2017 he was promoted to full professor.

He established the Center for Applied Water Research and Innovation (CAWRI) and became its inaugural director. He took over the position of Director for Virginia Tech Water/Wastewater Treatment Plant Operators Short School, a professional training programme. In 2020 Jason started a new position as professor at the Department of Energy, Environmental and Chemical Engineering, Washington University in St. Louis.

- 2018 Editor in Chief for Water Environment Research (WER) and Co-Editor in Chief for Environment International (EI)
- 2017 President for Chinese-American Professors in Environmental Engineering and Science (CAPEES)

Research focus: biological wastewater treatment, bio-electrochemical systems, sustainable seawater desalination, and bioenergy production

Dr Alexander GUSEV

Russian Federation

PhD in Political Science

Current position: Project Scientist at the Institute for Advanced Sustainability Studies (IASS) Potsdam, Germany

Under the supervision of Professor Carlo Rubbia, the Nobel Prize Winner in Physics, Alexander has been working on the future role of natural gas in energy transition, electricity markets, and the international governance of renewable energy during his PhD studies.

Prior to joining the Institute for Advanced Sustainability Studies, Alexander worked as a visiting researcher at the German Institute for International and Security Affairs in Berlin and as an Assistant Professor at the Higher School of Economics in Nizhny Novgorod, Russian Federation.

- 2012 German Chancellor Fellowship from Alexander von Humboldt Foundation

2010



Research Focus: future role of natural gas in energy transition, integration of renewable energy into future electricity markets

Dr Indumathi JEYACHANDRAN

India

PhD in Water Resources Engineering, Remote Sensing & GIS

Current position: Assistant Professor at San Jose State University, United States of America

Indu's research focuses on the observation and modelling of techniques for sustainable urban infrastructure planning. In her PhD thesis, she developed a modelling framework to estimate urban heat fluxes and helped establish an urban water and energy observation network in the Salt Lake Valley. Afterwards, she did her post-doctoral research at Tennessee Technological University, United States of America.

2010



Research focus: modelling and observations techniques for sustainable urban infrastructure planning

2010

Paul William JORGENSEN

South Africa

MSc in Environmental Science

Current position: Head of Climate Action Planning Africa for C40 Cities Climate Leadership Group, Johannesburg, South Africa

Paul serves as Head of Climate Action Planning Africa for C40's Climate Action Planning Programme. In this role he leads the delivery of the Africa programme supporting 11 African megacities in developing ambitious, inclusive, and integrated climate action plans. Prior to joining C40, Paul worked as an environmental consultant for SRK Consulting, assisting a diverse client base in providing advisory services and solutions for environmental and social challenges. This included developing climate change policies, strategies, and

implementation plans for the private sector and city governments.

Paul's research work focuses on natural capital, ecosystem services, climate change, and sustainability certification systems in mining and agriculture.

2015 Member of the Ecosystem Services Partnership

2014 Member of the Climate Reality Project founded and chaired by former Vice President Al Gore



Research focus: natural capital assessments, sustainability certification systems and climate change risk assessment

2010

Dr Tonni KURNIAWAN

Hong Kong, China

PhD in Applied Chemical Technology

Current position: Associate Professor at Xiamen University, China

Tonni's research focuses on water treatment, solid waste management, and renewable energy as well as the application of state-of-the-art water technologies for environmental protection. As one of the world's best talents in his field, he participated in the 60th Interdisciplinary Nobel Laureates Meeting in Lindau (Germany) in 2010.

In 2011 he received the Waste Management Award from Air & Waste Management Association (A&WMA), United States of America, and the Young Scientist Award from World Economy Forum in

2013. Since 2014 he has been a Young Global Leader of World Economy Forum.

2016 DAAD Fellowship for participating in 2016 Science Tour

2015 IAP Fellowship for 2015 World Science Forum in Budapest, Hungary



Research focus: water technology and waste management

Dr Janaína A. JUNKES

Brazil

PhD in Materials Science and Engineering

Current position: Professor and Researcher at Centro Universitário Tiradentes, Brazil

Janaína's academic approach focuses on waste treatment, the reuse of waste material, conserving resources, particularly raw materials, and offers a solution to the problem of waste disposal. Together with her team, she found a way to reuse mineral waste from industrial processes, such as mollusc shell, sugarcane bagasse ash within the ceramic industry.

After receiving the Green Talents award she completed three postdoctoral research programmes in Germany and Brazil and was hired as a professor by a private university in her home country. Janaína also conducts engineering classes for undergraduate and graduate students and is the head of the Laboratory of Environmental Analysis (LANA) at her university.

2011 Postdoctoral Scholarship at Friedrich Alexander University, Erlangen-Nürnberg, from the Brazilian government

2010



Research focus: reuse of waste as an alternative raw material to ceramic products

Dr Adriana Patricia LÓPEZ VALENCIA

Colombia

PhD in Environmental Sciences

Current position: Assistant Professor at Universidad del Valle, Colombia

Adriana has a keen interest in sustainability of informal settlements. She captures economic, ecological, and societal components of an area or urban space as a basis for land-use planning.

Thanks to her Green Talents participation, she worked as a visiting researcher at the United Nations University in Bonn, studying urban vulnerability to climate change in informal settlements. Following this, she started joint research projects on community participation and participatory urban design to reduce vulnerability and adaptation to climate change from a local perspective by using approaches from tactical urbanism.

2010-2011 Emerging Leaders in the Americas programme winner, Canadian Government Academic Excellence Award, Colciencias Doctoral Programme

2009

2010



Research focus: tactical urbanism for urban sustainability and vulnerability reduction strategies

2010



Dr Bee Ting LOW

Singapore

PhD in Chemical and Biomolecular Engineering

Current position: Senior Research Engineer, Membrane Technology and Research, Inc., United States of America

Bee Ting has earned her a Doctorate in Chemical and Biomolecular Engineering, with a specialisation in membrane science and technology for pre-combustion CO₂ capture. Such membranes have obvious real-world applications as the ability to filter CO₂ from exhaust gas is vital for the reduction of greenhouse gas emissions (e.g., from power plants that burn fossil fuel). As such, it plays a direct role in fighting global warming.

The goal of Bee Ting's doctoral research was the development of membrane technology for the purification of hydrogen and natural gas, a project funded by the Singapore National Research Foundation. While earning her doctorate, Bee Ting worked as a research engineer at the Department of Chemical and Biomolecular Engineering at National University of Singapore (NUS). She continued her research as a postdoctorate research fellow for the Nanoscience and Nanotechnology Initiative of the Faculty of Engineering at NUS. In that role, she was actively involved in a project aimed at designing polymeric membranes for CO₂ capture from flue gas funded by Singapore's Agency for Science, Technology and Research.

Research focus: membranes for CO₂ capture

2010



Dr Daniela MORAIS LEME

Brazil

PhD in Biological Sciences

Current position: Professor, Department of Genetics, Federal University of Paraná, Brazil

During her PhD, Daniela worked on the genotoxicity and mutagenicity of water contaminated by biofuels. With her research Daniela aimed to evaluate the whole production chain of biodiesel, including raw material sources. According to her findings, water and soil contaminated with biodiesel can induce adverse effects on living organisms, including cytotoxic and genotoxic effects.

Since 2011 Daniela has focused on developing new in vitro approaches to detect genotoxicants for humans and aquatic organisms. In the design of these in vitro alternatives, she takes into account not only their similarities with in vivo conditions, but also their high-throughput performance, which can help Green Chemistry achieves its goals in promoting sustainable chemicals.

- 2015-2016 Postdoctoral Trainee Award, Hispanic Organization of Toxicologists
- 2013 Stratacor Best Postdoctoral Award, Dermal Toxicology Specialty Section

Research focus: environmental monitoring, environmental hazard assessment, genetic toxicology, immunotoxicology, alternatives to animals (in vitro methods)

Andrew MARCH

United States of America

MSc in Pollution Chemistry and Environmental Risks

Current position: CEO at Power Pay, Inc., United States of America

After extensive research and partnerships in Madagascar, Andrew developed a revolutionary electricity grid management system that will allow microgrids and larger electricity grids to grow sustainably and exponentially. In 2015 he founded his own company Power Pay, which provides an efficient way to distribute electricity with the aim to improve isolated electricity grids.

Andrew conducted research for the Association pour le Développement de l'Énergie Solaire, a non-profit organisation in Madagascar, where he studied the impact of cooker use upon the deforestation rate. At the National Center for Atmospheric Research in Boulder, he investigated drivers of greenhouse gas emissions within densely populated urban centres.

2010



Research focus: methods to increase electricity access and provide reliable, transparent energy solutions to emerging markets

Dr Julia NIKITCHENKO

Ukraine

PhD in Ecology

Current position: Research Assistant National Aviation University, Ukraine

Julia's scientific work focuses on waste and resource recuperation, specifically that of scrap tyres. She approaches this problem in an interdisciplinary way, which allowed her to improve the technology used to process scrap tyres. In effect, this reduces time and amount of energy needed while also eliminating associated air pollution and secondary waste. The process does improve the quality of recycled products as well.

effects of such a centralised collection and treatment system for scrap tyres.

Julia is also the founder of the "Scientific and Technical Association of Chemmotologists". This organisation was formed to propagate information about the rational use of fuels and lubricants and to investigate alternative energy sources, the efficient use of natural resources, and other environmental topics.

Beyond purely technical aspects, Julia has developed a scrap-tyre management system for dealing with collection and transport of scrap tyres. In addition, she has designed a method of accounting for all tyres sold and collecting them again at the end of their lifecycle. She has also calculated ecological and economic

Research focus: recycling of scrap tires and application of secondary raw materials

2010



2010



Dr Mike OTIENO

Kenya

PhD in Civil Engineering

Current position: Senior Lecturer at University of the Witwatersrand, South Africa

Mike's research focuses on the development of a model that will help engineers predict the rate of corrosion-induced deterioration in reinforced concrete structures. This will allow them to develop efficient, sustainable maintenance and repair strategies for buildings.

With this background, Mike has worked as a civil engineer for several consulting and engineering firms in Kenya and Australia, and is lecturer in construction materials, including strength of materials,

at the University of the Witwatersrand in Johannesburg, South Africa.

2010 Carnegie scholarship to his PhD in South Africa

Research focus: concrete durability, service life prediction, steel corrosion in reinforced concrete structures, and repair and rehabilitation of concrete structures

2010



Dr Binita SHAH

India

PhD in Environmental Science

Current position: Research Scholar at National Institute of Industrial Engineering, India

Binita's research focuses on the impacts on the environment and social issues arising during the process of power generation, more precisely on life cycle assessment of electricity from coal-fired thermal power plants in India. She has overseen various environmental aspects of real estate, commercial services and construction industries, and gained expertise in environmental impact assessments and green building certification.

Binita conducted her research stay in Germany at the United Nations University in Bonn, working on measuring risk and vulnerability associated to natural hazards.

Research focus: sustainable consumption and production, green supply chain, environmental, social, and governance research, life cycle assessment, environmental impact assessment, and green buildings

Dr Hung PHAN

Vietnam

PhD in Materials Chemistry

Current position: Founding Faculty, Fulbright University, Vietnam

Hung's most current research involves in understanding the nanoscale properties and device physics of organic electronic materials and devices. Hung's PhD research contributed to the comprehension of molecular assembly and charge transport in Organic Field-Effect Transistors (OFETs). The development of OFETs for electronic devices is important because their low temperature and high throughput processing can reduce the energy consumption for manufacturing, compared to its inorganic counterparts.

In previous research, he focused on wastewater treatment, especially desalination, which contributes to assuring a sustainable municipal and industrial water supply and helps terminate disease and deaths related to unsafe water.

- 2016 Best Poster Award ICSM2016 Conference, China
- 2016 Mananya Tantiwivat Fellowship Award, University of California, Santa Barbara, United States of America
- 2015 UCSB Dissertation Fellowship, United States of America

2010



Research focus: molecular assembly and charge transport in organic electronic and biomedical devices

Mercedes VALDERRAMA-VERNAZA

Colombia

BSc in Biology

Current position: Director of Laboratory and Analyst, PSL Proanalisís Ltda., Colombia

Mercedes is especially interested in interdisciplinary ecosystem research and the relationship between man and nature. She actively promotes the protection of endangered species and the environment. She puts her activism into practice by performing scientific field research on the ecology of endangered species in Colombian nature preserves. A prominent example of this was her investigation of the conflict between the Andean Bear and cattle rearing in the high Colombian mountains.

2010



Research focus: ecosystem research and sustainable land use

2010



Chao WANG

China

MSc in Mechanical Engineering

Current position: Assistant Research Fellow at Beijing Union University, China

During his studies, Chao designed industrial processes to treat and recycle urban waste. He has been granted ten patents for his work.

For his achievements, Chao was among the winners of the China University Energy Saving and Emission Reduction Competition in 2011 as well as at the Beijing Invention Contest in 2012. He is a member of the China Invention Association and Beijing Engineering Research Center of Smart Mechanical Innovation Design

Service and an advisor for the Thirteenth Five Year Plan (2016-2020) for the National Economic and Social Development of Beijing Municipality in local waste treatment issues.

- 2016 Inventor of the China Granted Patent: Waste classification collection reminder device
- 2013 Beijing Technician Outstanding Innovation Award

Research focus: waste treatment methods in urban precision management of smart cities and energy-saving applications in local residential communities

GREEN TALENTS

2009

Applications total 159
 Application countries 42
 Winners 15

Dr Dewei ZHAO

China

PhD in Electrical Engineering

Current position: Professor at Sichuan University, China

Dewei's research focuses on perovskite solar cells, organic solar cells, quantum dots/organic hybrid solar cells, organic light-emitting diodes, co-doping phosphorescent OLEDs, quantum dots-Organic Hybrid LEDs, and de-sensitised solar cells. In his PhD research, he explored energy-related organic and inorganic optoelectronic devices and nano-devices.

After receiving the Green Talents award he conducted his postdoctoral research in the United States of America, including research stays at the University of Michigan and at the University of Florida from 2012 to 2014. In 2014 Dewei started to work as a postdoctoral associate at the University of Toledo and was promoted to Research Assistant Professor in 2015. In 2019 he started his new position as full-time professor at the Sichuan University in China.

- 2012 Chinese Government Award for Outstanding Self-financed Students Abroad

2010



Research focus: perovskite solar cells, organic/inorganic hybrid solar cells, quantum dot light-emitting diodes, and organic LEDs



2009



Dr Juliana ARISTÉIA DE LIMA

Brazil

PhD in Chemistry

Current position: Research Engineer at Conservatoire National des Arts et Métiers, France

Juliana's academic approach focuses on the development of biodegradable polymers blends, which are ubiquitous in modern-day life, most notably in the form of plastics. In addition, she has deep experience, skills, and knowledge in the production and characterisation of nano-composites, block copolymers, polymer blends, materials structuring, materials interfaces, microscopy, and spectroscopy.

Research focus: sustainable management in the chemical industry

2009



Dr Saumita BANERJEE

India

PhD in Biotechnology

Current position: Technology Associate at NineSigma Inc. Bangalore, India

Saumita's research work focused on the production of bioethanol from lignocellulosic biomass, one of the most promising options for greenhouse gas reduction as it comes in a variety of forms, such as wood residues and paper waste. Hence, such a technology could help to solve both waste disposal and energy supply problems.

Through her work in Germany, Saumita managed to enrich her dissertation and broadened the subject to an area she would have otherwise left unconsidered.

The Green Talents programme helped expand her knowledge of environmental technologies and also taught her about future trends in her field of research. She then joined Siemens Corporate R&D as a research engineer to work in an area closely aligned with her PhD work. In her current role, Saumita is helping organisations accelerate their innovation cycle by helping them find new solutions, knowledge, and partners, from beyond their organisational boundaries.

Research focus: Open Innovation

Dr Akintunde BABATUNDE

Nigeria

PhD in Civil Engineering

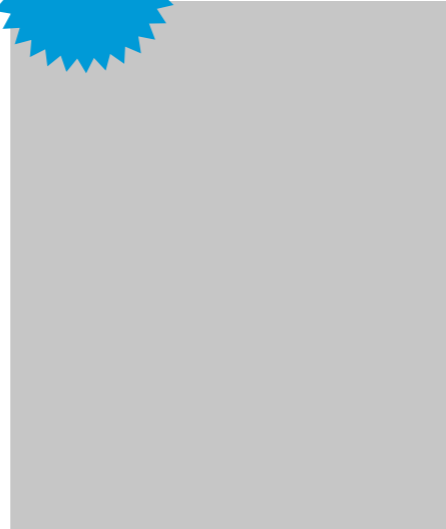
Current position: Associate Professor at the University of Leeds, United Kingdom

Akintunde is an expert in systems and processes for sustainable water engineering and associated links with bioenergy. He has received funding for his research from various sources including the water industry.

After his participation in the Green Talents programme, he received the prestigious Irish Research Council Marie Curie Fellowship award (2010) and was appointed a Member of Council of the Society of Environmental Engineers, United Kingdom, in 2012. He was re-elected in 2016.

2012 Selected as Welsh Crucible

2009



Research focus: sustainable water engineering and bioenergy

Dr Antonio Carlos CAETANO DE SOUZA

Brazil

PhD in Mechanical Engineering

Current position: Assistant Professor at Faculty of Engineering, Universidade Federal da Grande Dourados, Brazil

Antonio's research focuses on the generation of hydrogen on the basis of biogas and its association with fuel cells. He has a particular interest in the conversion of glycerol, a by-product of the biodiesel production, into hydrogen for energy generation. This kind of technology is particularly relevant in Antonio's home country: Brazil is one of the largest ethanol producers in the world, so such a technology would have huge potential for the future, as it would make fuel production more environmentally sustainable and economically viable.

Thus, Antonio works as a teacher for disadvantaged young people. He not only teaches them geography, but also discusses current issues of sustainability with them, taking into account the subject of conflicts over resources.

2009



Research focus: fuel cells and the use of biomass as a renewable energy source

2009



Dr Nuwong CHOLLACOOP

Thailand

PhD in Materials Science and Engineering

Current position: Head of Renewable Energy Laboratory at the National Metal and Materials Technology Center, National Science and Technology Development Agency (NSTDA), Ministry of Science and Technology (MOST), Thailand

From 2010 to 2016 Nuwong has been Research Leader in the Japan-Thailand collaboration project "Innovation on Production and Automobile Utilisation of Biofuels from Non-Food Biomass". Here, H-FAME (partially hydrogenated fatty acid methyl ester) technology was developed and adopted in Thailand's Alternative Energy Development Plan. He was recently appointed as an expert for granting Thailand's Energy Conservation fund.

- 2018-2019 ASEAN Science and Technology Fellow
- 2016 Participated in the 1st ASEAN Science Leadership Programme awarded by the Global Young Academy
- 2010 Scholarship from German Academic Exchange Service (DAAD)
- 2008-2016 Elected Country Expert for Economic Research Institute for ASEAN and East Asia

Research focus: biofuel, sustainable transportation, climate change

2009



Dr Natalia FISHER

Russian Federation

PhD in Microbiology and Ecology

Current position: Senior Researcher at the Institute of Water and Ecological Problems, Far Eastern Branch of Russian Academy of Science, Russian Federation

During her research stay in Germany at the Grundwasser-Zentrum Dresden, Natalia identified the ability of microorganisms to oxidise manganese. Collaborating extensive with other scientists, she became interested in groundwater pollution issues, which result in the disappearance of clean and safe drinking water.

She researches the biogeochemical features of pollution by hydrocarbons of

surface water (small rivers), groundwater of industrial zones, and living sector of urban area in cold climate zone. Her research focuses on the cities of Khabarovsk and Komsomolsk-on-Amur (both located on the banks of the Amur River in the Russian Far East). She pays special attention to the features of microbiological processes of self-purification of surface water and groundwater in different seasons, especially during wintertime and in the period of snowmelt.

Research focus: biogeochemical processes in surface water and groundwater of urban territory in cold climate

Dr Caetano DOREA

Brazil

PhD in Environmental Engineering

Current position: Associate Professor at the University of Victoria, Canada

Caetano's research focuses on water, sanitation, and health, with applications varying from the characterisation of functional microbial ecology of biological treatment processes to the development and evaluation of water and sanitation technologies.

Before he relocated to the University of Victoria in 2017, he held academic positions at the Université Laval (Quebec City, Canada) and at the University of Glasgow (Glasgow, United Kingdom).

After the award, he established the Water, Sanitation & Health (WASH) research group at the Université Laval and later established his current research group, the Public Health & Environmental Engineering (PH2E) Lab, at the University of

Victoria. His interests and expertise are at the crossroads of environmental and public health engineering including the development and evaluation of technologies, and approaches for safeguarding the health of the public and the environment. He has recently received a competitive NSERC Discovery Accelerator Supplement in recognition of the quality and potential of his WASH-focused research programme.

2009



Research focus: water, sanitation, and health

Dr Kerem GÜNGÖR

Turkey

PhD in Biological Systems Engineering

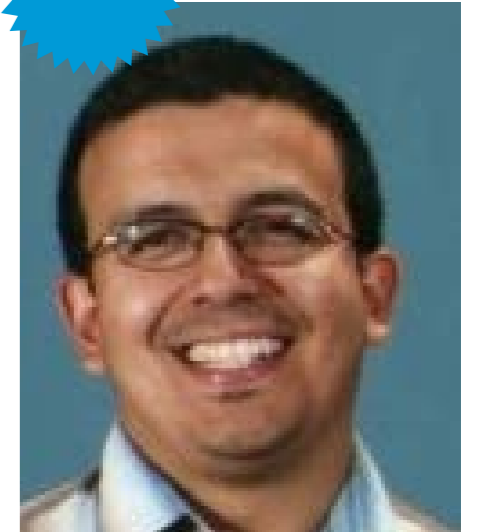
Current position: Environmental Engineer at the Department of Environmental Protection, Maine, United States of America

Kerem's current position focuses on stormwater management, green infrastructure/low impact development, erosion, and sedimentation. In his PhD thesis, he studied animal waste, using lab-based tests and experiments, in the context of diffuse agricultural phosphorus pollution.

The Science Forum 2009 helped him to re-assess his professional activities, which allowed him to make tangible contributions to the overarching goal of sustainability.

From 2009 to 2014, he worked as an Assistant Professor at the Abant İzzet Baysal University, Turkey where he led a project addressing the phosphorus dynamics of the shallow and eutrophic Yenicaga Lake in Turkey.

2009



Research focus: stormwater management, green infrastructure, erosion sedimentation

2009



Dr Xingmao (Samuel) MA

China

PhD in Civil Engineering

Current position: Associate Professor at Zachry Department of Civil & Environmental Engineering, Texas A&M University, United States of America

Samuel's research interests range from groundwater and land remediation to environmental nanotechnology. He has investigated the role of plants in enhancing contaminant removal from soil and groundwater and is currently expanding this effort to phytomonitoring—the use of plants to monitor contaminant plumes in soil and groundwater. In the field of environmental nanotechnology, he is studying the transport of nanoparticles in the environment, particularly the uptake, transport, and

accumulation of engineered nanoparticles by various plants.

One of Samuel's goals is to understand the toxicity, accumulation, and bioavailability of nanoparticles to human beings through consumption of edible plants. He is also exploring the potential applications of nanotechnology in environmental clean-up efforts.

Research focus: environmental health and safety of engineered nanomaterials, biogeochemistry of emerging contaminants, phytoremediation, ecosystem restoration, water reuse

2009



Dr Aluwani NEMUKULA

South Africa

PhD in Biotechnology

Current position: Lecturer and Researcher at University of KwaZulu-Natal, South Africa

In his research, Aluwani focuses on algae bio-products and renewable energy with special applications in aquaculture, production of biofuels, and pharmaceuticals.

He conducted his research stay at the Institute of Process Engineering in Life Sciences of the Karlsruhe Institute of Technology (KIT), Germany. After this, he went back to his home country to continue working on microalgae biotechnology with the goal of developing an

integrated process for sustainable and energy efficient production of renewable metabolites.

2018 Bio-Innovation Award, South Africa

2011 Youth Ambassador for Climate Change at the 17th United Nations Climate Change Conference, Durban, South Africa

Research focus: algal biotechnology, bio-products and biofuels

Dr Carlos A. MARTÍNEZ-HUITLE

Mexico

PhD in Chemical Sciences

Current position: Associate Professor at Federal University of Rio Grande do Norte, Brazil

Carlos' scientific work focuses on electrochemical environmental processes, such as electrochemical water treatment and electrochemical soil remediation. In collaboration with the Brazilian Petroleum Industry, he developed electrochemical oxidation processes in which the oxidants are generated using a flow electrochemical reactor to remove organic pollutants. Carlos' research is especially important to Brazilian society since the country's access to clean drinking water and water resources is limited in some regions.

in 2019. Currently, he is a visiting scientist at Mainz University, Germany supported by Alexander von Humboldt Foundation.

2016 Editorial Board Member for Scientific Reports, Nature Publishing Group

2015 Editorial Board Member for Applied Catalysis B: Environmental, Elsevier

2009 ISE Oronzio and Niccolò De Nora Foundation Prize on Environmental Electrochemistry

Carlos is coordinator of the Graduate Programme in Petroleum Sciences and Engineering. He participated as general chair of organising committees of the XXI Simpósio Brasileiro de Eletroquímica e Electroanalítica in 2017 and of the 4th Iberoamerican Conference on Advanced Oxidation Technologies

Research focus: electrochemical advanced oxidation processes for water treatment, electrocatalytic materials, electrocatalysis, photocatalysis and electroanalysis

2009



Dr Nihar SAMAL

India

PhD in Water Resource

Current position: City Research Scientist at the Office of Agency of Chief Engineer (OACE), The New York City Department of Environmental Protection, United States of America

Nihar's research focuses on water quality modelling in freshwater and wastewater systems. He is currently working on hydraulic capacity analysis of sewers and collection infrastructure across a broad range of modelling scenarios applying a hydrologic-hydraulic model and support long-term planning of system growth. The major focus is on the design and implementation of green infrastructure and low impact development to manage stormwater within New York City.

environmental impacts at regional scales due to spatially distributed changes in land use and climate in the 21st century.

2019 Always Creating Excellence (A.C.E.) Employee Award, New York City Department of Environmental Protection

2016-2018 Senior NRC Research Associateship Award with the US Environmental Protection Agency (EPA)

His previous project at the University of New Hampshire, United States, was developing and applying a process-based spatially distributed hydrology model that dynamically accounts for the interactions among atmospheric, terrestrial, and aquatic processes. The model aims to quantify the

Research focus: advanced hydraulic and hydrologic modelling in urban environments and river floodplains, climate change impact analysis, valuation of ecosystem services

2009



2009



Dr Sharifah Rafidah Binti WAN ALWI

Malaysia

PhD in Chemical Engineering

Current position: Director of Process Systems Engineering Centre (PROSPECT) at the Universiti Teknologi Malaysia (UTM), Malaysia

For her PhD, Sharifah researched cost-effective reduction of water consumption using a specific network design. She has filed 14 patents, 22 copyrights, and developed 5 software products.

Sharifah specialises in process systems engineering with emphasis on resource conservation and is the co-founder of the corporate spin-off from UTM called Optimal Systems Engineering Sdn Bhd (OPTIMISE). She has also served as the Chairman for

Malaysia IChemE Young Engineer Group (YEG) and is a member of Young Scientist Network, Academy of Sciences Malaysia (YSN-ASM) and Persatuan Saintis Muslim Malaysia (PERINTIS). Sharifah is a certified ASEAN Energy Management Scheme (AEMAS) Energy Manager trainer since 2009 and a Registered Electrical Energy Manager under Malaysia Energy Commissioner. She was one of the committee and energy managers, which aid UTM in securing the AEMAS Energy Management Gold Scheme Award from 1 to 3 Star and also the ASEAN Energy Award 2012.

Research focus: process integration, pinch technology, resource conservation and process systems engineering

2009



Dr Minghua ZHOU

China

PhD in Environmental Engineering

Current position: Professor at College of Environmental Science and Engineering at Nankai University, China

Minghua studies methods to mineralise organic pollutants by advanced oxidation processes such as photocatalysis, ozonation, wet air oxidation, and electrochemical oxidation. These methods can break down the organic pollutants in wastewater into biodegradable ones or even further to a level where all that is left are water and carbon dioxide. These technologies are very efficient and environmentally sound.

The other area in which the Chinese researcher works is the recovery and reuse of wastewater using microbial fuel cells, for example, to generate power, which can then be potentially used to partially power the operation of wastewater treatment facilities. It combines disposal with a sustainable way of reducing energy costs.

Research focus: water and environmental engineering

Dr Bo YANG

China

PhD in Environmental Science and Engineering

Current position: Professor at College of Chemistry and Environmental Engineering, Shenzhen University, China

Bo is working on disposal technologies for typical organic pollutants in water using methods such as chemical reduction, UV oxidation, and others. He also designed water treatment specifically for industrial wastewater from printing and dyeing. Shenzhen is one of the world's fastest growing cities and a major industrial centre with intense manufacturing. As a result, industrial wastewater is an important issue in the southern Chinese city.

Bo has a broad interest in environmental technologies, which goes beyond the area of water in the strictest sense. He is also interested in renewable energies, contaminated land management, and environmental remediation.

2009



Research focus: water technologies

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