

International Conference on Solar Energy, Materials and Technology

24 - 25 November 2022 (9:00 - 16:00 GMT)

ACADEMIC SPEAKERS



Prof Mohammad Khaja Nazeeruddin

Honorary Professor
École Polytechnique Fédérale de Lausanne (EPFL), Switzerland

Prof Nazeeruddin is one of the Highly-Cited Researchers in the world. He started his postdoctoral research career with Prof Michael Grätzel in EPFL, as one of the leaders of dye-sensitised solar cells. His research team contributes to the field of inorganic chemistry for renewable energy through the molecular engineering of ruthenium sensitisers for dye-sensitised solar cells. His research focuses on hydrogen production, light-emitting diodes and chemical sensors. He has published over 380 peer-reviewed papers, ten book chapters, and holds 40 patents. He was recently appointed as World Class University (WCU) professor by Korea University, and Adjunct Professor by King Abdulaziz University, Saudi Arabia.



Prof Mohammed Ashraf Gondal

Distinguished Professor
Department of Physics and Coordinator of the Laser Research Group, King Fahd University of Petroleum and Minerals, Saudi Arabia.

Prof Gondal's research group is working on the development of laser-based techniques for pollution monitoring, mineral exploration, elemental analysis of geological rocks, bio samples, herbal medicines and material characterization. He is an expert in Photoacoustic, Laser-induced breakdown spectroscopy, LIDAR (for atmospheric remote sensing), Optogalvanic, Laser enhanced ionization (LEI) atomic and molecular spectroscopy, laser/solar induced photo-catalysis applications for green hydrogen production, water purification, reduction of CO₂, CH₄ for carbon management and utilization to develop value added hydrocarbons, desulphurisation of crude oil and petrochemicals using nanomaterials. He has over 600 publications and 25+ US patents.



Dr Sudhagar Pitchaimuthu (FRSC)

Associate Professor
School of Engineering & Physical Sciences, Institute of Mechanical, Process & Energy Engineering, Heriot-Watt University, Riccarton, UK.

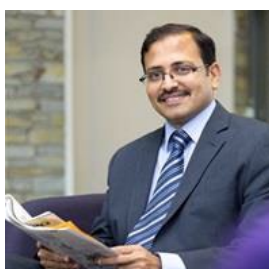
Dr Pitchaimuthu's main research areas are photoelectrochemistry, photocatalysis, nanomaterials, solar energy, and electrochemical CO₂ recycling. In 2016, he moved to the UK as a junior research fellow at Queen's University, Belfast. The European Regional Development Fund awarded him the Sêr Cymru II-Rising Star Fellowship through the Welsh Government in 2017, where he led the "Multifunctional Photocatalyst & Coating" research group at SPECIFIC, Materials Research Centre, College of Engineering, Swansea University. He is a Fellow of the Royal Society of Chemistry.



Dr Pankaj Yadav

Assistant Professor
Pandit Deendayal Petroleum University (PDPU), Gujarat, India
General Secretary
Perovskite Society of India.

Before joining PDPU, Dr Yadav worked as a Swiss Excellence Fellow with Prof Michael Grätzel at EPFL, Switzerland. At PDPU, he explores the application of different materials for a range of energy harvesting and storage devices. He has received many prestigious awards, including a Fulbright fellowship, Swiss Excellence fellowship and overseas postdoctoral fellowship. His current research interests range from thin film devices, solar photovoltaic, perovskite solar cells, hydrogen generation, fuel cells, energy generation and storage devices, as well as electroanalytical characterisations.



Dr Senthilarasu Sundaram

Associate Professor
School of Computing, Engineering and the Built Environment, Edinburgh Napier University, UK.

Before joining Edinburgh Napier University, Dr Sundaram was a senior lecturer at the University of Exeter. Prior to this, he worked as a postdoctoral research associate at Loughborough University (2010-2011) and Heriot-Watt University (2012). He is currently working on sustainable energy technologies to create environmentally sustainable materials for energy generation, storage, building integrated applications, thermal storage, water remediation, and low-carbon heating applications. He is involved in various EPSRC, EU, and Innovate UK-funded projects. Dr Sundaram has published articles in over 150 journals and made editorial contributions to others including Scientific Reports published by Nature.

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INDUSTRY SPEAKERS



Lucy Crane

ESG & Sustainability Manager
Cornish Lithium, UK

Lucy Crane is a geologist with a background in grassroots exploration. She holds an MSc in Mining Geology from Camborne School of Mines and a Master's degree in Earth Sciences from the University of Oxford. Before joining Cornish Lithium, she worked as an exploration geologist for Altus Strategies, planning and implementing exploration strategies for base and precious metals projects up to the drilling stage in Africa. She is now applying these skills to Cornish Lithium's exploration programme. Her role at Cornish Lithium is fostering collaboration with other industry and academic partners to accelerate the exploration programme and test new concepts.



Dr Hasan Baig

Managing Director and Chief Technology Officer
Build Solar, UK.

Dr Hasan Baig has over 12 years' experience developing low-carbon technologies. He has set up a state-of-the-art solar laboratory, teaches engineering courses and supervises students. His research interests include manufacturing renewable energy technologies, engineering design, nanofluids, sustainable materials, concentrating photovoltaics, electric vehicles and space-based solar. He holds a British patent for the solar squared technology (GB2561369), and is exploring patent opportunities in other countries. In 2019, he received the Cornwall Sustainability Award for Innovation under the Sustainability category.



Dr Abhik Banerjee

Team Leader
Research Institute of Sustainable Energy (RISE) under TCG CREST, India

Dr Abhik Banerjee has more than 10 years' experience in the design, novel chemical synthesis, characterisation, and structure-property-performance relationships of various materials; particularly materials for solid-state electrochemical energy storage. At RISE he works on the underlying causes currently hindering solid-state batteries, silicon and Li metal anode. He also provides practical approaches towards enabling safety, higher energy density and fast-charging batteries. His contribution to research in this field has been proven in over 30 articles in archival journals and he holds 5 patents.



Gabriel Wondrausch

Director & Founder
Sungift Solar, UK

Gabriel had a very environmentally conscious upbringing via his mother and was gifted a creative streak by his grandmother, Mary Wondrausch, who was awarded an OBE for services to the arts. Initially qualified as a renewable energy installer, Gabriel quickly began to feel that there was a gap in the market for a better-quality offering and in 2005, he founded [SunGift](#). He knew that the industry needed a pioneer to provide top quality energy installations that were suited to customers' needs. Driven by this, and believing strongly that renewable energy made sense both environmentally and financially, the rest was a matter of hard work and dedication. Within 4 years, SunGift had won its first award and became an industry leader. In 2013, Gabriel was named Environmental Entrepreneur of the Year at the Devon Environmental and Business Initiative Awards.

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GUEST SPEAKERS



Dr Mussad Mohammed S Alzahrani

Lecturer
Mechanical and Energy
Engineering Department,
Imam Abdulrahman Bin Faisal
University, Saudi Arabia

Dr Mussad received his PhD in Renewable Energy from the University of Exeter in 2022 under the supervision of Prof Tapas Mallick. His work focuses on research into ultra high concentrations of photovoltaics. He is one of the leading experts in energy modelling and concentrated PV systems. Before undertaking his PhD, he worked as an energy engineer at the Industrial Assessment Center (IAC) at the University of Dayton, USA, from 2015 to 2017.



Dr Asmaa Rady Ahmed

*Assistant Professor of
Renewable Energy*
Faculty of Engineering, Port
Said University, Egypt.

Dr Asmaa Rady Ahmed was a Renewable Energy PhD researcher from 2018 to 2021 at the Environment and Sustainability Institute, University of Exeter, UK, supervised by Prof Tapas Mallick. Her PhD was funded by the Newton-Mosharafa Fund, a UK-Egypt partnership program for postgraduate scholarships. Her PhD focussed on high concentrating photovoltaics research and she is currently working on several projects in the area of renewable energy applications for climate change mitigation. She is a part of a team working on "Egyptian Offshore Wind to produce Green Hydrogen to Mitigate the Effects of Climate Change." This project is run in cooperation with Port Said University, Egypt, and the University of Strathclyde, UK. It is funded by the British Council, Egypt according to climate grants in the run-up to COP27 as part of the Climate Connection Programme.



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ECR FORUM



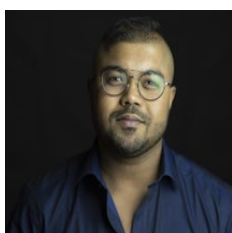
Dr Katie Shanks

EPSRC Fellow under the David-Clarke scheme
University of Exeter, UK

Research interests:

Solar optics, focusing on those that encompass many contributing fields surrounding solar concentrator technology

Solar tracking, thermal management, photovoltaic performances, and biomimicry



Dr Somdip De (FRSA)

Assistant Lecturer
University of Essex, UK

Research interests:

Artificial intelligence scientist, technology journalist & entrepreneur

A member of Forbes Technologies Council and TEDx, and fellow of the Royal Society of Arts



Dr Mohamed Jaffer Sadiq M

Postdoctoral Researcher
King Fahd
University of Petroleum and Minerals, Saudi Arabia

Research interests:

Photocatalysis

Organic pollutant and dye degradation

Electrocatalyst for Water Splitting



Krishanu Dey

Cambridge India Ramanujan PhD Scholar
University of Cambridge, UK

Research interests:

Perovskite (opto) electronic devices

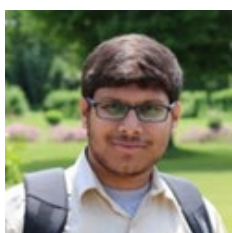


Dr Yusuf Chanchangi

Postdoctoral Researcher
University of Exeter, UK

Research interests:

Advanced technology to investigate photovoltaic performance, soiling impact development, soiling mapping and forecasting



Dr Priyabrata Sadhukhan

Postdoctoral Researcher
Yonsei University, South Korea

Research interests:

Perovskite light-emitting diodes

Piezoelectric devices supercapacitor

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Dr Abdul Zeeshan Khan

Lecturer-B
King Fahd
University of Petroleum and
Minerals, Saudi Arabia

Research interests:

Metal oxide-based photoelectrochemical water splitting

The catalyst for hydrogen production

Charge transfer and charge recombination kinetics of charge carriers at the electrode-electrolyte interface in energy-harvesting applications



Dr Santanu Saha

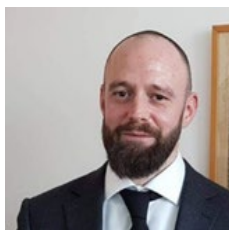
Postdoctoral Researcher
University of Oxford, UK

Research interests:

Computational condensed matter physics

Density functional theory

Structural prediction and material design using high-throughput



Dr David Trudgeon

Postdoctoral Researcher
University of Exeter, UK

Research interests:

Study and development of the zinc electrode for the zinc-nickel redox flow battery

MELODY - a H2020-funded project aiming to develop a low-cost, high-efficiency membrane-free redox flow battery system, using hydrogen and bromine redox couples



Dr Atin Pramanik

Postdoctoral Researcher
Rice University, USA

Research interests:

Polyanionic materials for lithium-ion and sodium-ion battery applications

Electrochemistry (battery and supercapacitor)



Dr Amrit Kumar Thakur

Postdoctoral Researcher
Indian Institute of Technology
Bombay, India

Research interests:

Solar thermal

Solar absorber coating

Desalination, thermal energy storage, mxene, batteries, nanomaterials, heat transfer and material characterization



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UNIVERSITY OF EXETER STAFF



Prof Tapas Kumar Mallick (FRSA, FRSC)

Professor and Chair in Clean Technologies (Renewables)
University of Exeter, Penryn Campus, UK
Adjunct Professor in Mechanical Engineering
Indian Institute of Technology, Madras, India
Co-founder and Chief Scientific Advisor
BuildSolar Limited, UK

Prof Mallick is currently leading the solar energy research group at the Environment and Sustainability Institute, University of Exeter, Penryn Campus, UK. His research focus is applied solar energy, and with his research team, he looks at bridging the urban and rural energy divide through solar energy implementation. He is particularly interested in teaching advanced solar energy engineering and heat transfer for renewable energy systems. He is actively involved in various RCUK, European and Industrial funded research projects in the solar energy arena. He is a part of the SUPERGEN solar consortium, a EUED centre-critical research consortium in the UK. In addition, he is an Associate Editor and Subject Editor of the journals *Energies* and *IET Renewable Power Generation*. He has a strong relationship with many ODA countries and spans the Indian continent, the Middle East, and sub-Saharan Africa. He has supervised twenty-two PhDs to completion and engaged several governmental-level panels worldwide. In 2016, he received the British Indian Award for services to education in the UK; in 2018, BuildSolar received the Best Innovation for Sustainability award in Cornwall.



Prof Jane Wills (FBA, FAcSS)

Director and Professor of Geography
Environment and Sustainability Institute, University of Exeter, Penryn Campus, UK
Fellow of the British Academy

Prof Wills has been tracking the development of the living wage campaign since it was launched in Walthamstow, East London in 2001. Since moving to the University of Exeter and working in Cornwall, her focus has shifted to public and policy engagement for sustainability. She also has long-standing interests in the politics and philosophy of research and knowledge production, and political and economic geography. Her current research is focused on the way in which nature can be integrated into regional policy, and how it is considered alongside socio-economic factors by using the 'doughnut economics' approach. Her philosophical interests are reflected in a recent edited volume: *The Power of Pragmatism: Knowledge Production and Social Inquiry* (Manchester University Press, 2020, Edited with Robert W. Lake).



Prof Asif Tahir

Associate Professor in Renewable Energy
Environment and Sustainability Institute, University of Exeter, Penryn Campus, UK

Prof Tahir's fundamental studies of new materials and device concepts aim to elucidate design principles and enable technological development. His group's key research objective is to study light-induced water oxidation and reduction reactions, and hydrogen production on novel nanostructured semiconductor electrode surfaces, as a renewable energy source. He is currently investigating the photocatalytic and photoelectrochemical performance of metal oxide, oxynitride and nitride photoelectrodes for solar hydrogen generation, and the effects of doping agents and preparation techniques on their properties. He is also associated with developing new smart glazing technology for windows and facades to modulate the incoming and outgoing heat into indoor space to reduce building energy load while at the same time providing visual comfort. He did his M.Phil and PhD from the Quaid-I-Azam University Islamabad, Pakistan, in 2004 and 2009, respectively. After that, he worked as a research associate at Loughborough University and the University of Liverpool, UK, for 5 years.



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Prof Mark Goodwin
(FACSS)

*Deputy Vice-Chancellor
(Global Engagement)*
University of Exeter,
Streatham Campus, UK

Prof Mark Goodwin leads on Global Engagement for the University. He is responsible for delivery of the University's Global Strategy and has oversight of all of the University's global activities, including student recruitment and global partnerships. Our growing portfolio includes significant strategic partnerships with international universities including the University of Queensland and the Chinese University of Hong Kong. Prof Goodwin joined the staff at Exeter in 2004, following his role as Director of the Institute of Geography and Earth Sciences at the University of Wales, Aberystwyth. He became Deputy Vice-Chancellor at Exeter in 2013, having previously been Dean of the College of Life and Environmental Sciences. He graduated in Geography from the University of Sussex, before completing his PhD at the London School of Economics.



Dr Anurag Roy (AMRSC,
MIScT, FICS)

Senior Postdoctoral Researcher
Environment and Sustainability
Institute, University of Exeter,
Penryn Campus, UK

In 2019, Dr Roy achieved a PhD in Chemistry from CSIR-Central Glass and Ceramic Research Institute, Kolkata, India, under the DST-INSPIRE Fellowship, Government of India. Before pursuing his PhD studies, he worked as a research assistant at the Research and Development Centre, Tata Steel Limited, India. He has recently received the designator address of AMRSC as an Associate Member of the prestigious Royal Society of Chemistry. He is also a fellow of the Indian Chemical Society (FICS), a member of the American Chemical Society, the International Solar Energy Society and the Institute of Technology (MIScT), UK, and is a life membership holder in 5 international scientific communities. He has published 58 SCI articles, 3 book chapters and 3 research blogs. He has contributed to the UK's Research Excellence Framework with impact factor publications >15. He has received various prestigious grants like Newton-Bhaba PhD Placement (University of Exeter's first), U.K.-Saudi Arabia Challenge Fund -2022 (University of Exeter's First), Agri-Tech Cornwall Passive Cooling, India-UK JUICE program, GW4 Crucible and EPSRC UKRI Smart Composite development funding. He has participated in 20+ international conferences, Invited Lectures 8, Oral presentations 12+, Poster presentations 10+, and received various awards like best oral presentation, young scientist, young researcher etc. He has also been selected for British Council's Going Global Partnerships programme, which supports partnerships between universities, colleges, education policymakers, civil society organisations and industry partners in the UK and worldwide. His research track record implies under the UK Research and Innovation's seven technology families with new technologies and specialist processes that enable cleaner ways to produce and sustainably use energy and direct the Impact of Case studies on GCRF themes, including the United Nation's Sustainable Development Goal #7 - affordable and clean energy. He is currently one of the mentors of the QS Future 17 program.



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