

IEEE PES Symposium 2023, Singapore

Friday, November 17, 2023, 9.30AM-2.30PM

National University of Singapore, Kent Ridge Campus,
Lecture Theatre 3 (LT3), Singapore.

Invited Talks

Title: From Production to Use – The Possible Future Role of Hydrogen-based Energy Carriers in Asia-Pacific

Speaker: Dr. Tobias Massier, Principal Scientist, EPSG, TUMCREATE

Date & Time: Friday, November 17, 2023, 10.00AM – 10.45AM.

Abstract: In order to decarbonise the power sector, electricity generation from energy sources such as solar photovoltaics and wind has vastly increased. While this trend continues, it has become clear that the electrification of heating or cooling, transport or industrial processes, is more challenging. Moreover, the intermittence of these energy sources requires expensive storage systems.

In recent years, hydrogen caught decision makers' attention as a potential "green" fuel. It has many possible applications such as generation of power and heat, use as fuel or storage system. However, it comes with challenges such as availability, cost and emissions of production, shipping, storage and handling.

Many regions of the world, such as Southeast Asia, still see a vast increase in energy demand. This requires well-planned sustainable solutions that incorporate a variety of different energy carriers.

In this talk, the role of hydrogen will be discussed, with potential production sites as in Australia, transport in different forms, storage and various applications, particularly in Southeast Asia.

Speaker Bio: In 2013, Tobias Massier joined TUMCREATE as Principal Scientist. He has been leading the Energy and Power Systems Group since then. Since 2022, he has been managing the project "Singapore's Pathway to Carbon Neutrality – Analysis of New Technologies".

Tobias established a team of researchers working on projects in the field of power and energy systems and electric mobility. Moreover, he defined new areas of research, acquired additional grant funding and established collaborations with partners from academia, governmental organisations and industry.

Before joining TUMCREATE, Tobias took on the role as university programme manager in 2009 to establish a new Master programme in Power Engineering (MSPE) at the Technical University of Munich that attracts more than 1000 applicants every year. Tobias received his diploma (M. Sc.) and his doctoral (PhD) degree from the Technical University of Munich in 2002 and 2010 respectively. There, his research focussed on the structural analysis of analogue integrated circuits.

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Invited Talks

Title: The growth and challenges for solar photovoltaic (PV) systems deployment in Asia

Speaker: Dr. André Nobre, VP - Asset Management & Performance, Cleantech Solar

Date & Time: Friday, November 17, 2023, 10.45AM – 11.30AM.

Abstract: Solar photovoltaic (PV) systems have grown from 1 GWp deployed in the start of the new millennia to more than 1 TWp in just over 22 years. The next TWp will come in just 3 years, highlighting the speed of adoption of solar PV as the fastest renewable energy source deployed in the world. However, how are these existing systems performing out there in the field now that several of them have been running for a few years and decades? This talk will showcase some of the challenges in PV systems real-world operations which may not be known to most, but that are a part of the realities of deploying these assets across Asia, home of half of all PV global capacity, and with its ever rapid-growing societies as a backdrop.

Speaker Bio: Dr. André Nobre graduated in Mechanical Engineering from UFMG and obtained his Doctor of Engineering degree in Solar Energy from UFSC, both top federal universities in Brazil. He moved to Singapore in 2005 working with a German PV module manufacturer. He then moved to the Solar Energy Research Institute of Singapore (SERIS) at the National University of Singapore (NUS), being part of the early group of scientists present at the birth of the institute over 15 years ago. At SERIS, he managed public-funded grants in topics related to PV system performance in the tropics as well as solar irradiance forecasting. Most notably, he was the project manager of the 1 MWp floating PV system testbed at Tengeh Reservoir. Among 40+ publications in PV system behaviour, he authored early pioneer works on the influence of atmospheric pollution on the performance of PV systems. He has been with Cleantech Solar for eight years now, currently the Vice President of Asset Management & Performance, managing ~700 MWp of assets across 600+ sites in 7 countries. These installations range from industrial rooftop systems all the way to solar farms, floating PV systems and small systems such as nearly hundred currently under deployment at petrol stations in Asia.

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Title: Electrification in Asia: Opportunities & Challenges

Speaker: Kelvin Ng, Principal Business Development Manager, PTV Group

Date & Time: Friday, November 17, 2023, 12.45PM – 1.30PM.

Abstract: Governments throughout Asia have made commitments to convert ICE vehicles to EVs and expand EV charging infrastructure. Over the next decade, there will be opportunities and challenges to achieve these EV goals and targets. This session will share the current state of vehicle electrification and charging infrastructure for selected countries in Asia.

Speaker Bio: Kelvin Ng is the Principal Business Development Manager for ASEAN+ at PTV. He has 10+ years of business development and partnership experience in ride-hailing, active mobility, and bus-sharing technology companies.



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Invited Talks

Title: Plugging into Human Behaviour: Navigating the EV Charging Behaviour Landscape

Speaker: Dr. Nandini Anant, Scientist, IHPC, A*STAR

Date & Time: Friday, November 17, 2023, 1.30PM – 2.15PM.

Abstract: Understanding human behaviour is essential for achieving sustained advancement in the rapidly changing field of electromobility. In this talk, I explore the complex interaction between electric vehicles and their key users: people. EV adoption rates are affected by myriad factors, including government policies, consumer attitudes towards EVs, availability and accessibility of EV infrastructure, and social norms. Additionally, there are huge differences in people's charging routines and behaviours which can result in differences in attitudes between early adopters and late adopters of EVs. As such, I explore the crucial role that human behaviour plays in determining the future of transportation by taking pricing patterns, psychological considerations, and societal norms into account.

Speaker Bio: Dr. Nandini Anant is an experimental social psychologist navigating the intersection of risk-taking behaviour, social support and well-being in both digital and physical environments. She is currently a Scientist with the Institute of High-Performance Computing (IHPC), a flagship interdisciplinary research entity of the Agency for Science, Technology and Research (A*STAR), a leading science, technology and research organisation in Singapore.

As part of the Social and Cognitive Computing Department and the Social Sciences and Technology Horizontal Training Coordination Office, she lends her expertise in human behaviour and user research techniques to a range of projects, including the award-winning Singapore Integrated Transport and Electrification Model (SITEM) project. She also offers Final-Year Projects as a Supervisor for masters' and undergraduate students at SIT and JCU Singapore.

Her current research focuses on cross-cultural factors that influence human attitudes, perceptions and behaviours across various domains, such as novel technologies like electric vehicles and alternative proteins, online gaming and mental well-being.

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