

“Electric Vehicle Charging Infrastructure: Challenges & Opportunities”

Date: 11 January 2024 (Thursday)

Time: 6.30pm – 9.30pm

Venue: Singapore Polytechnic Graduates’ Guild

Grand Ballroom Level 3

1010 Dover Road

Singapore 139658

Fee: Free for IEEE PES members and non-members

Registration: <https://localevents.theiet.org/register.php?event=ad5c5e>



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IEEE Power and Energy Society Singapore Chapter is collaborating with The Institution of Engineering and Technology Singapore Network, Newcastle University and The National University of Singapore to organise an evening networking seminar on 11 January 2024 at 6.30pm. We are privileged to have Professor Volker Pickert from the United Kingdom to share with us on the current state and future developments in EV charging infrastructure and the latest research on EV charging systems at Newcastle University.

Agenda:

6.30pm – Registration

6.40pm – Dinner Networking

7.30pm – Introduction of IEEE PES and IET Activities

7.45pm – Technical Talk on Electric Vehicle Charging Infrastructure: Challenges & Opportunities

9.00pm – Q&A

9.30pm – Networking Discussions.....

10.00 – End of programme

About the speaker

Bio Prof Volker Pickert

Volker Pickert (Member of IEEE & IET) studied at the RWTH Aachen, Germany, and Cambridge University, UK, and he received his Dipl.-Ing. degree in Electrical and Electronic Engineering from RWTH Aachen in 1994. He was awarded the Ph.D. degree in power electronics from Newcastle University, Newcastle upon Tyne, U.K., in 1997. From 1998 to 1999, he was an Application Engineer at Semikron GmbH, Nuremberg, Germany, and from 1999 to 2003 he was Group Leader at Volkswagen AG, Wolfsburg, Germany, responsible for the development of electric drives for electric vehicles. In 2003, he was appointed as a Senior Lecturer in the Electrical Power Group, Newcastle University, and in 2011 he became Full Professor. From 2012 to 2020 he was the Head of the Electrical Power Group and from 2020 to 2023 he was the Director of Electrical and Electronic Engineering managing 40 academics and over 100 post docs and PhD students. He has published more than 200 book chapters, journal articles, and conference papers in the field of power electronics and electric drives. His current research interests include power electronics for transport applications, thermal management, health monitoring techniques, and advanced nonlinear control. Prof. Pickert received the IMarEST Denny Medal for the best article in the Journal of Marine Engineering in 2011 and in 2018 he received the Best Paper Award at the IEEE International Conference on Computing Electronics & Communications Engineering (iCCECE), Essex, UK. He is regularly invited as keynote speaker and advises governments on energy and transport related issues. In 2019 he became the Director of UK's EPSRC Centre for Doctoral Training in Sustainable Electric Propulsion training 50 PhD students. He is the Editor-in-Chief of the IET Power Electronics journal and received in 2019 the IET Outstanding Editor-in-Chief Award.

Electric Vehicle Charging Infrastructure: Challenges & Opportunities Synopsis

Worldwide, transportation accounts for a staggering 24% of greenhouse gas emissions. To address this pressing issue, 62 countries have made a firm commitment to achieve NetZero by 2050, effectively decarbonizing transport. Electric vehicles (EVs) are considered a key enabler in achieving this target, and markets have witnessed rapid growth in EV sales over the past few years. This trend is projected to continue, with an estimated 300 million EVs expected to be on the roads globally by 2030.

To fully realize the potential of green EVs, a reliable, fast, and affordable charging infrastructure is essential. Power electronics has played a pivotal role in transforming EV charging infrastructure, enhancing its efficiency, cost-effectiveness, and convenience for EV users. As power electronics technology continues to advance, we can anticipate even more ground-breaking innovations in the EV charging space, including faster charging times, improved efficiency, and the development of more sophisticated smart charging systems.

The first part of the presentation will delve into the current state and future developments in EV charging infrastructure. The focus will be on the transformative role of power electronics in recent years, encompassing everything from fundamental on-board charging units to domestic charging stations. The talk will also shed light on the challenges and opportunities associated with this evolving technology.

The second part of the presentation will showcase the latest research on EV charging systems at Newcastle University. Various technologies will be presented, highlighting cutting-edge static and dynamic conductive and wireless charging solutions.