



**Dr. Zian QIN**

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Zian Qin (IEEE Senior Member) received the B.Sc. degree from Beihang University, Beijing, China, in 2009; M.Sc. degree from Beijing Institute of Technology, Beijing, China, in 2012; and Ph.D. degree from Aalborg University, Aalborg, Denmark, in 2015; all in electrical engineering. He is currently an associate professor with the Department of Electrical Sustainable Energy at Delft University of Technology, the Netherlands. In 2014, he was a Visiting Scientist at RWTH Aachen University, Aachen, Germany. His research interests include power electronics-based grids, solid-state transformers, and battery energy storage. He (co-)authors over 100 journals/conference papers, 4 book chapters, and holds 4 international patents. He is an associate editor of IEEE TPEL, TIE and JESTPE. He is the founding chair of the IEEE Transportation Electrification Council Benelux Chapter. He was the technical program chair of IEEE-PEDG 2024 & 2023, IEEE-ISIE 2020, IEEE-COMPEL 2020, etc. He was a winner of the IEEE OJPEL prize paper award 2020~2023 and the Excellent Innovation Award in the IEEE International Challenge in Design Methods for Power Electronics 2023.

# Power Electronics Empowered EV Charging

E-mobility is essential for the global carbon-neutral climate goal. The charger is an enabling technology in E-mobility, determining the charging time and the impact on the grid network. As the battery capacity keeps increasing for longer mileage, the power rating of the charger is pushed higher so that the charging can be done in a relatively short time. Nowadays, passenger EV chargers rated more than 300 kW can be found at rest stops beside the highway. For heavy-duty e-transportation, the chargers typically have to deliver multi-MW charging power. However, a major part of the grid was built decades ago and, thereby, is not prepared for the spread out of the chargers in terms of both grid capacity and stiffness. To tackle these challenges, we need advanced power electronics technologies, energy storage integration, power quality and stability analysis of the charging network, etc. All these will be addressed in the talk.