

## Title

### **Is Power Electronics an Enabling and Sustainable Technology for Transportation Electrification?**

## Summary

This presentation will consider the roadmaps for transportation electrification and the technological developments in use of power electronics which are going to be needed to make these visions viable. These developments and technology challenges will include the electrical drivetrain design and the applications of motor design and power converter topology choices as well as the impact of emerging technology advances including cooling techniques, integration, system optimisation and wide-bandgap semiconductors. The Challenges for us as Power Electronics or Electrical Machines experts will also be explored and case studies from aircraft, superbikes and solar powered cars will be used to illustrate the approaches being taken. The sustainability of power electronics in these applications will also be considered.

## About the speaker:

### **Prof Pat Wheeler**

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Prof Pat Wheeler received his BEng [Hons] degree in Electrical Engineering in 1990 from the University of Bristol, UK. He received his PhD degree for his work on Matrix Converters from the University of Bristol, UK in 1994. In 1993 he moved to the University of Nottingham and worked as a research assistant in the Department of Electrical and Electronic Engineering. In 1996 he became a Lecturer in the Power Electronics, Machines and Control Group at the University of Nottingham, UK. Since January 2008 he has been a Full Professor in the same research group.



He is currently the Director for Global Engagement in the Faculty of Engineering and the Head of the Power Electronics, Machines and Control Research Group. He was Head of the Department of Electrical and Electronic Engineering at the University of Nottingham from 2015 to 2018. He is a member of the IEEE PELs AdCom and is currently IEEE PELS Vice-President for Technical Operations. He has published over 950 academic publications in leading international conferences and journals.