

**Presentation Title:** Control and Condition Monitoring of PMSG Drives for Wind Turbines

**Presentation Abstract:** The majority of modern offshore wind turbines are based on PMSG drives due to demanding requirements of performance, reliability, and availability. The control system of a PMSG drive plays a major role on optimal performance, condition monitoring, and fault tolerance. This presentation addresses: (1) the basic control principles of a PMSG drive for wind turbines; (2) recent developments concerning power converter fault diagnosis; and (3) fault-tolerant control strategies.



**Nuno M. A. Freire** was born in Coimbra, Portugal in 1987. He received the MSc and PhD degrees in electrical engineering from the University of Coimbra, Portugal, in 2010 and 2014.

From 2013 to 2017, he was with Siemens Wind Power in Denmark. Since 2017, he has been with Siemens Gamesa Renewable Energy, being team leader of generator control technology development.

His research interests include control and condition monitoring of electric drives applied to wind energy conversion systems.