

POWER, ENERGY & CLEAN TECHNOLOGIES

seminars

Biography

Professor Junwei Lu

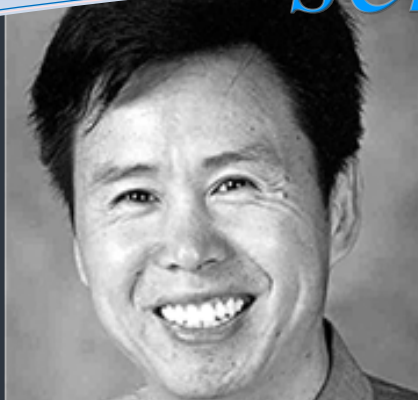
IEEE Senior Member, QLD IEEE Chapter Secretary of Power Electronics/Industry Electronics/Industry and International Compumag Society Board Member EEE Group, School of EBE, Griffith University

Professor Junwei Lu received a degree in electrical engineering from Xian Jiaotong University, China, and the M.Eng. degree in electronic and computer engineering from the National Toyama University, Japan, the Ph.D. degree in electrical and computer engineering from the National Kanazawa University, Japan, in 1991. From 1976 to 1984, he worked with the electrical power industry as a research engineer majoring in high voltage engineering in China, where he was involved in various national research projects for the electrical power industry. In 1985, his academic study and research moved toward the area of computational electromagnetics at the Laboratory of Electrical Communication Engineering at Toyama University, Japan. In 1988, he worked on applied computational electromagnetics and was involved in the development of magnetic devices with the Laboratory of Electrical Energy Conversion at national Kanazawa University.

He joined the School of Microelectronic Engineering, Griffith University, Brisbane, Australia, in 1992 and moved to Gold Coast campus to establish Electrical and Electronic Engineering as a Foundation Professor since 2011. His fields of interest are high-frequency magnetics for power electronics and renewable energy system, computational electromagnetics, EMC computer modeling and simulation. His current research interests include smart transformer and high frequency rotary transformers, WPT with magnetic flux concentrator for EV and AGV, and V2G with built-in statcom and APF functions, smart hybrid AC/DC Microgrid, offshore wind turbine, and flywheel energy storage systems. He has published over 400 journal and conference papers and three coauthored books in the area of harmonics balance methods, EMC and V2G bidirectional DC/DC converters. He holds over 20 international patents related to high frequency

Speaker's contact details

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Date and Time:

Friday 20 October 2023

12:00pm (AEST) – start

12:55 – conclusion

Time will be allocated for questions after the presentation

This seminar will only be delivered by livestream Zoom:

Zoom Delivery: [Join by Zoom](#) Password: 849951

The Energy Researchers at QUT are pleased to invite you to an online PECT Seminar given by Professor Junwei Lu from Griffith University

Synchronous Machines and DFIM Using HF Transformer and DC/DC Converter for Offshore Wind Turbines

Abstract

Many low-power wind turbines built to date were constructed according to the “Danish concept” in which wind energy is transformed into electrical energy using a simple squirrel-cage induction machine directly connected to a three-phase power grid. This strategy leads to expensive mechanical construction, especially at high-rated power.

Modern high-power wind turbines are capable of adjustable speed operation. A synchronous generator is used to produce variable-frequency AC power. A power converter connected in series with the ASG (adjustable speed generator) transforms this variable-frequency AC power into fixed-frequency AC power. The double-fed induction generator (DFIG) remains the mainstream solution in 2022 with over 50% of the market share, followed by direct drive permanent magnet generator (DD PMG), squirrel cage induction generator (SCIG,) and medium-speed PMG.

This presentation will provide an introduction to a novel high frequency (HF) rotary transformer and bi-directional DC/DC converter using SiC MOSFET integrated HF transformer for offshore wind turbines.

[RSVP via Eventbrite](#)

COB Thursday 19 October 2023

