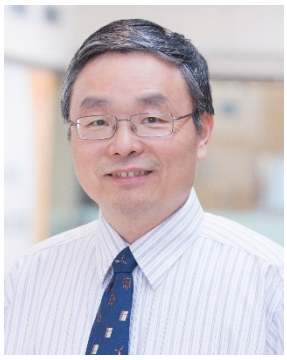

Dr. Yan-Fei Liu (M'94-SM'97-F'13) is a Fellow of IEEE and a Fellow of Canadian Academy of Engineering. He received his Bachelor and Master degree from the Department of Electrical Engineering from Zhejiang University, China, in 1984 and 1987 and PhD degree from the Department of Electrical and Computer Engineering, Queen's University, Kingston, ON, Canada, in 1994.

He was a Technical Advisor with the Advanced Power System Division, Nortel Networks, in Ottawa, Canada from 1994 to 1999. Since 1999, he has been with Queen's University, where he is currently a Professor with the Department of Electrical and Computer Engineering.

His current research interests include optimal application of latest wide band gap devices, such as GaN switches, digital control technologies for high efficiency, fast dynamic response dc–dc switching converter and ac–dc converter with power factor correction, resonant converters and server power supplies, and LED drivers. He has authored over 270 technical papers in the IEEE Transactions and conferences, and holds more than 39 U.S. patents and several Chinese patents. He is also a Principal Contributor for two IEEE standards. He received IEEE Power Electronics Society Modeling and Control Technical Achievement Award in 2017. He received Premier's Research Excellence Award in 2000 in Ontario, Canada, as well as Award of Excellence in Technology in Nortel in 1997.

Currently, Dr. Liu is the Vice President of Technical Operations of IEEE Power Electronics Society (PELS, from 2017 to 2020). His other major services to IEEE are: Editor of IEEE Journal of Emerging and Selected Topics of Power Electronics (IEEE JESTPE) since 2013; General chair of ECCE 2019 to be held in Baltimore, USA in September 2019; Co-General Chair of ECCE 2015 held in Montreal, Canada, in September 2015; Guest Editor-in-Chief for the special issue of Power Supply on Chip of IEEE Transactions on Power Electronics from 2011 to 2013; a Guest Editor for special issues of JESTPE: Miniaturization of Power Electronics Systems in 2014 and Green Power Supplies in 2016.

报告 1：

报告题目: New and Better: Methodology for a Better Thesis and Research
报告时间：2019 年 5 月 9 日 14:00-16:00
报告地点：哈尔滨工业大学科技园创新科技大厦 K831 室
报告摘要：New and BETTER is an extremely important philosophy for your research and thesis. By "New", it means new idea, new technology, anything that has not been proposed before. By "BETTER", it means that the new ideas you proposed is better in at least some aspects. The criteria to evaluate if the new idea is significant is how much better it is as compared with the existing solutions. The seminar will also discuss other strategies to improve your research capability and how to write the best thesis you could possibly get. Using the development history of Charge Balance Control (CBC) technology, this seminar will discuss some strategies to propose new ideas and how to explore the significance of the new ideas. In addition, by focusing on New and BETTER

philosophy, a seemly simple circuit can increase the efficiency of an LLC converter from 95% to 95.8%.

报告 2：

报告题目: Introduction to GaN Devices and Best Utilization of LLC Resonant Converter
报告时间：2019 年 5 月 10 日 9:00—11:00
报告地点：哈尔滨工业大学科技园创新科技大厦 K831 室
报告摘要：GaN switches can bring fast switching speed and lower conduction loss. The fast switching speed is good for reducing the switching loss. Unfortunately, it brings high frequency oscillation in hard switching converters. This seminar summarizes the features of the GaN switch and the directions as how to take advantages of these features. The rest of the seminar focuses on how to improve the performance of the commonly used LLC converters to meet the different application scenarios, including for wide input voltage and output voltage variation range, method high load current application, and high output power application. Current sharing and interleaving using the switch-controlled-capacitor (SCC) technique and common inductor technique are introduced. A technique to reduce the conduction loss of the Synchronous Rectifier (SR) of the LLC converter is also introduced. Several hot applications, where LLC converter together with GaN switches can bring significant benefits, are highlighted.

报告 3：

报告题目: Digital Intelligent Control Technologies for Switching Power Converters
报告时间：2019 年 5 月 10 日 14:00—16:00
报告地点：哈尔滨工业大学科技园创新科技大厦 K831 室
报告摘要：Digital control can significantly improve the performance of switching power converters. This presentation is to introduce the digital technologies that can improve the steady state and more importantly, the dynamic performance of DC-DC switching converters. At first, the digital control techniques to improve the steady state performance of the switching converter, such as light load efficiency improvement and optimal dead time adjustment to improve the heavy load efficiency will be introduced. The emphasis of the seminar is how the digital control technologies can be used to improve the dynamic performance of switching power converters. Auto tuning technology is used to automatically design the digital compensation network to improve the dynamic performance under unknown and/or large parameter variation conditions. Digital Charge Balance Control (CBC) technology is proposed to achieve optimal dynamic performance that is limited by the power converter parameters.