● Organized Session 4 in ICCT-Pacific 2025:

Recent Advances and Applications in High-Frequency Magnetics, Power Converters, Motor Drives and Related Control Technologies

● Names of organizers:

✓ Session Chair: Dr. **Nguyen Gia Minh Thao**
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● Paper submission deadlines:

✓ First submission deadline: **18 October 2024**
✓ Paper acceptance notification: 13 December 2024

● URL in conference homepage: **https://2025.icct-pacific.org/organized-sessions**

● Session overview and scope:

Due to the fast popularity of new technologies such as wide-bandgap power semiconductor devices (SiC/GaN) and advanced topologies of power converters, the recent developments of high-efficient and power-density converters and high-frequency magnetic cores in motor drive systems and electric vehicles (EVs) have been much interested. Moreover, the model-based and intelligent control methods for power converters and motor drives provide an effective mean to substantially reduce the development time and tackle the design complexity. Furthermore, AI algorithms are useful to effectively design and control of motor drives, EVs, and renewable energy systems. Therefore, the objective of this session is to discuss and share advanced techniques and studies, consisting of analysis, simulation, and experiments, to resolve design and control issues in high-efficient power converters, filters with high-frequency magnetic cores, motor drives, and related applications.

Topics of interest include but are not limited to: Advanced topologies and control of power converters and motor drives; Power converters utilizing wide-bandgap semiconductors; Analysis and evaluation of motors and drive systems; Magnetic cores for high-frequency power electronics applications; Design and control of battery management systems; AI and control technologies of EVs and renewable energy systems.

● Keywords:

- ✓ Wide-bandgap power semiconductors
- ✓ Power converter topologies and control
- ✓ Electric motors and drive systems
- ✓ High-frequency magnetic cores
- ✓ Battery management systems
- ✓ AI and control technologies of EVs
- ✓ Renewable energy systems and microgrids

● Brief biographies of organizers:

✓ **Nguyen Gia Minh Thao** (*Senior Member*, *IEEE*) obtained the B. Eng. (honors) degree in electrical and electronics engineering from Vietnam National University – Ho Chi Minh City University of Technology, Vietnam, in 2009, and the Dr. Eng. degree in electrical engineering and intelligent control from Waseda University, Tokyo, Japan, in 2015. From 2015 to 2020, he was a Postdoctoral Researcher in Waseda University and Toyota Technological Institute, Japan. From 2020 to 2023, he was an Assistant Professor in Nagoya University and Toyota Technological Institute, Japan. Since 2023, Dr. Thao has been an Associate Professor in Shimane University, Japan, where he is the head of the Electric Motors and Energy Systems Laboratory. He has been an Associate Editor of *IEEE Transactions on Industry Applications*, since 2022. He has also been a Guest Editor for special issues of refereed journals such as *Electronics* and *IET The Journal of Engineering*. Moreover, he has been an Editorial Member of the *Journal of Computer Science and Cybernetics*, since 2021. His research interests include advanced control methods, electric motors and drives, power electronics, electromagnetic analysis and evaluation, renewable energy, optimization, and electric vehicles.

✓ **Ton Duc Do** (*Senior Member*, *IEEE*) received the B.S. and M.S. degrees from Hanoi University of Science and Technology, Hanoi, Vietnam, in 2007 and 2009, respectively, and the Ph.D. degree from Dongguk University, Seoul, South Korea, in 2014, all in electrical engineering. He was with the Division of Electronics and Electrical Engineering, Dongguk University, as a Postdoctoral Researcher, in 2014. He was also a Senior Researcher with the Pioneer Research Center for Controlling Dementia by Converging Technology, Gyeongsang National University, South Korea, from May 2014 to August 2015. Since September 2015, he has been an Assistant Professor and then an Associate Professor with the Department of Robotics and Mechatronics, Nazarbayev University, Kazakhstan. His research interests include the field of control engineering, electric drives, renewable energy conversion systems, and nanorobots. He received the Best Research Award from Dongguk University in 2014, the Most Cited Paper Award from *Wind Energy* in 2020-2021, and the Outstanding Associate Editor Award of *IEEE Access* in 2021 and 2022. He has been listed in the top 2% of scientists based on the citation on the single-year table in 2020 and 2021, and both single-year and career-wide tables in 2021, 2022, and 2023. He has been an Associate Editor of *IEEE Access*, since 2017, and *IEEE Robotics and Automation Letters*, since 2023. He has been recently promoted to a Senior Editor of *IEEE Access*.