The Institution of Engineering and Technology

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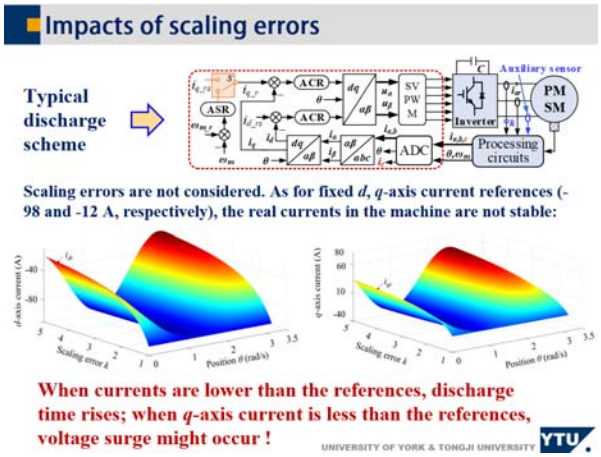
Travel Award
Winner 2021

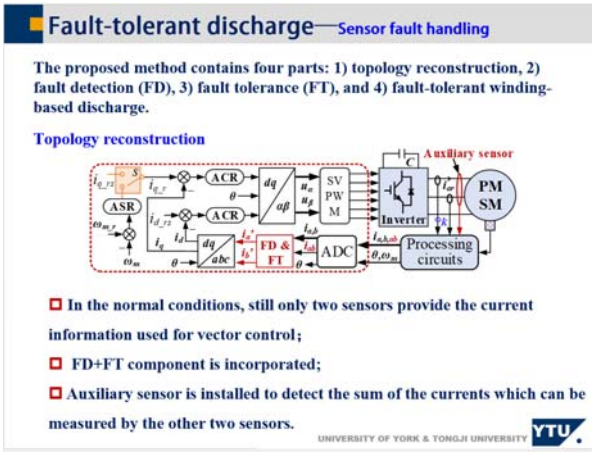
IET Travel Award 2021 — Report

My name is Chao Gong, from the University of York, the UK. I feel extremely lucky to win the IET International Travel Award, which had been given to support my journey in August, attending the 2021 International Joint Conference on Energy, Electrical, and Power Engineering (CoEEPE 2021) held in Huangshan City, China on September 3-5, 2021. However, at the end of August, I was informed that the conference was postponed to November 5-7, 2021 due to the COVID-19 epidemic, so I had to reschedule my journey. To be honest, I had been afraid that the conference might be rescheduled or canceled due to the terrible epidemic until it was confirmed, at the end of October, by the administrator that the conference would be held as planned. I feel extremely fortunate to be in for such a successful trip.

CoEEPE 2021is organized by China Electrotechnical Society and the International Association of Electrical, Electronic and Energy Engineering (IAEEEE), co-organized by Anhui University. The conference aims to bring together leading scientists, practitioners, researchers, and delegates across the globe to present the latest innovations and knowledge in energy and power engineering and to stimulate new ideas and collaborations. It attracts hundreds of scholars and researchers to share their newest findings and research findings, and at the conference, a total of about impressive 100 presentations, including invited speed and oral/poster presentations, were given. As for the three-day conference, it was divided into several main parts: Registration, Keynote Speech, Oral Presentation, Poster Presentation, Award, and Closing Ceremony. Besides, coffee breaks, lunch, and dinner were provided by the organizers. All attendees received a warm reception and hospitality, so they (at least I) must have delightful trips within those days. I am grateful for the organizers' efforts.

I gave an oral presentation to the conference, introducing my research findings on electric vehicle safety. The presentation arises from my paper entitled "Fault-Tolerant Winding-based DC-Bus Capacitor Discharge for EV Permanent Magnet Drivetrains in Post-Crash Conditions," which was submitted and accepted by the conference. In terms of this research, a new single-phase current sensor fault-tolerant winding-based discharge technique to reduce the bus voltage reliably for the PM drivetrain-based EVs in post-crash conditions. Firstly, the impacts of the scaling fault of the current sensor on the discharge performance are analyzed, addressing the necessity of developing current sensor fault-tolerant control techniques for the discharge process. Secondly, a new current sensor fault detection technique based on deceleration calculation together with the fault elimination mechanisms is discussed. Finally, a reliable winding-based discharge technique with the current sensor faults removed is presented. Hopefully, both scholars in academia and researchers in the industry could pay more attention to EV safety issues after reading my paper in the future.





I got many networking opportunities interacting with peer scholars and researchers who have been doing excellent work in the field of electrical engineering. Undoubtedly, I made many friends who are potential collaborators in the future. What makes me excited is that my work was recognized by them, and it is important for me to brainstorm potential research directions through communications. Hopefully, many scholars could get to know me at the conference, which will be conducive to my career. Overall, by attending the conference, I gained a very valuable experience.

Finally, I am really grateful that the IET supports me to attend the CoEEPE 2021 with the IET International Travel Award. The award is really valuable in the following three aspects: 1) my research is recognized by the IET, significantly helping improve its influence; 2) the award secures my competitiveness when it is presented in the CV; 3) the funding makes it possible for me to attend the conference. The contribution of the IET has been acknowledged in my oral presentation as well as the final conference paper.

Sincerely,

Chao Gong