

## **Invited Speaker**



**Jingbo Wang**

**Postdoctoral Research Assistant**

**Department of Electrical Engineering and Electronics**

**University of Liverpool**

**Title: Forecasting-Assisted Coordinated Scheduling of Renewable-Powered Green Hydrogen Production**

**Abstract:** Renewable-powered green hydrogen is an important pathway for low-carbon energy transition, but the intermittency of renewables, such as wind and solar power, brings major challenges to electrolyzer operation, hydrogen production efficiency, and system stability. This talk presents a coordinated scheduling framework for an off-grid wind-solar-hydrogen-battery storage system with multiple alkaline electrolyzers. A forecasting model is developed to predict wind-solar power output, while battery storage is introduced to buffer renewable fluctuations and reduce unnecessary electrolyzer start-stop actions. Based on this, a refined rolling optimization strategy is proposed to dynamically coordinate battery operation, the number of operating electrolyzers, and power distribution under varying renewable conditions. Results based on real-world operational data show that the proposed method can improve hydrogen production, reduce start-stop cycles, lower hydrogen cost, and decrease carbon emissions compared with conventional scheduling strategies. The study provides a practical solution for improving the efficiency, economy, and sustainability of renewable-powered hydrogen production systems.

**Information of the speaker:** Jingbo Wang is a Postdoctoral Research Assistant in the

Department of Electrical Engineering and Electronics at the University of Liverpool, UK. His research focuses on the optimal operation of renewable energy and green hydrogen systems and artificial intelligence applications in modern power systems. He has published more than 40 SCI-indexed journal papers in leading journals such as *Renewable and Sustainable Energy Reviews*, *Applied Energy*, and *Energy Conversion and Management*. His publications include 4 ESI Highly Cited Papers, among which 2 were multiply recognized as ESI Hot Papers. According to Google Scholar, his work has received more than 3500 citations, with an h-index of 30. He was selected for Stanford University & Elsevier World's Top 2% Scientists in 2025. As a key researcher, he has participated in research and innovation projects supported by the UK Engineering and Physical Sciences Research Council (EPSRC) Supergen Energy Networks Hub and Innovate UK. He serves as a Guest Editor for special issues in *Processes* and *Energy Engineering*, and as a Topic Coordinator for *Frontiers in Energy Research*. He has served multiple times as a Special Session Chair at international conferences, including IEEE ICPST 2024, AEEES 2022, and AEEES 2021, and has delivered invited presentations at international academic conferences. He received the Outstanding Reviewer Award at IEEE ICPST 2024.