

Special Issue

Recent Advances in Fuel Cell Technology and Its Application Process

Message from the Guest Editors

Topics of interest include, but are not limited to, the following:

- **Advanced materials** for electrodes, electrolytes, interconnects, and seals (e.g., non-precious catalysts, high-entropy alloys/oxides, and ionomer blends).
- **Novel cell and stack architectures**, including thin-film, 3D-printing, micro-tubular, and flexible designs.
- **Manufacturing and scale-up processes**—laser processing, additive manufacturing, roll-to-roll fabrication, coating, and impregnation techniques.
- **Multi-physics modeling, simulation, and digital twins** for design optimization, control, and lifetime prediction.
- **Degradation mechanisms and mitigation strategies**, such as catalyst coarsening, poisoning, thermal/mechanical cycling, and redox stability.
- **Operando and in situ diagnostics**, advanced characterization, and data-driven approaches (machine learning, physics-informed AI).
- **Balance-of-plant components and process integration**: reformers, humidifiers, heat exchangers, and hybridization with batteries or renewable generators.
- **System-level studies and techno-economic/life-cycle analyses** for stationary, mobile, aviation, maritime, and off-grid applications.

Guest Editors

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