

Special Issue

Challenges, Progress, and Outlook of High-Performance Fuel Cells

Message from the Guest Editors

As a strategic energy option, fuel cells offer high energy efficiency, low- or zero-emission operation, making them an ideal candidate. However, with the increasing cost constraints, the development of high-performance fuel cells is at the forefront of modern energy research.

This Special Issue calls for original and innovative research and review papers addressing high-performance fuel cells, including the exploration of novel materials, the enhancement of electrochemical performance, as well as the improvement of safety and stability. The scope of this Special Issue includes, but is not limited to, the following:

- Exploration of new catalyst materials for fuel cells;
- Design optimization of electrodes for enhanced fuel cell performance;
- Investigation of the heat and mass transfer in fuel cells;
- Innovative manufacturing processes for cost-effective fuel cells;
- Performance analysis of fuel cells under extreme operating conditions;
- Improving the durability of fuel cell membranes;
- Application of AI in fuel cell design and control;
- Digital twinning or big data analytics of complex heat and mass transfer processes in fuel cell
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