

Special Session on

“Energy and health management of fuel cell energy systems”

Organized by

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Call for Papers

Fuel cells have been receiving increasing attention since the last two decades. It has been proven that fuel cells are promising to be applied in a wide range of applications thanks to the advantages such as high-power density, zero on-board emission, and high efficiency. Two applications receiving the most attention are these in electric vehicles and in microgrids. For these applications, the improvement of fuel cells' reliability and durability is still the major challenge. Health management is considered as an effective solution in system monitoring and control level. Apart from that, as fuel cells are in most cases operated combining with other sources and/or energy storage units, the management of the energy flow among different components and loads plays a decisive role in optimizing the performance of both the fuel cell system and the whole system. In this consideration, this special session is to gather recent studies dealing with the health management and energy management of fuel cell based energy systems, especially the works combining the designs of these two elements.

Topics of interest include, but are not limited to:

- Design, control, and optimization of the auxiliary components for fuel cells.
- Topologies and control of DC/DC converters used for fuel cell based systems.
- Control oriented modeling for fuel cell systems in degraded and/or faulty states.
- Experimental results and analysis of fuel cell degradations in different applications.
- Fuel cell monitoring and fault diagnosis.



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- Fuel cell degradation modeling, prognosis and remaining useful life prediction.
- Control design dedicated to improving fuel cell durability and reliability.
- Design, modeling, control and demonstration of fuel cell based energy systems o (fuel cell electric vehicles, microgrids, etc.)
- Online adaptation methods for modeling and control.
- Energy management strategies for fuel cell based energy systems.