

Special Session

Full multi-scale modeling for fuel cell: ageing parameters upscaling from the micro to the system scale

Session Chair:

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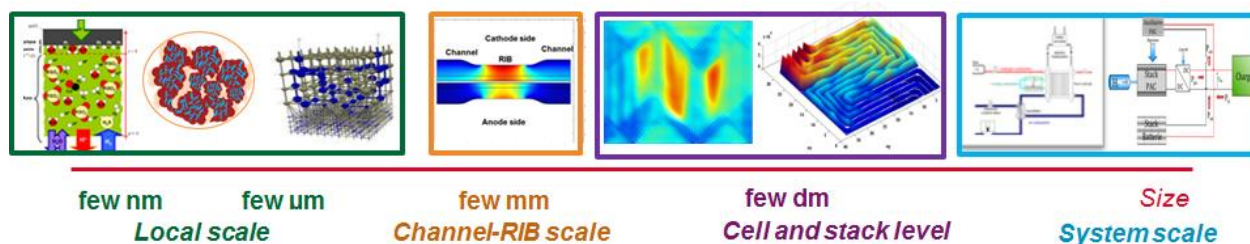
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The strong coupling between the reversible and irreversible degradation mechanisms in a MEA (Membrane Electrode Assembly) of a fuel cell and the local conditions at different scales (electrochemical double layer, active layer, thickness of the MEA (difference rib/channel), surface area of a cell (difference inlet/outlet), stack levels (difference between the cells)) must be modeled to have predictive ageing laws at the system level.

The aims of this special session are to highlight the last advanced on multi-scale and multi-physic fuel cell modeling and reversible and irreversible degradation mechanisms model.

Topics of this session include (but not limited):

- Multi-physic and multi-scale fuel cell modeling
- Fuel cell reversible and irreversible degradation mechanisms modeling
- Fuel cell system control and energy management to improve durability



A full multi-scale approach for fuel cell modeling

This special session aims to facilitate the building of a European fuel cell modeling community. EERA Fuel Cell and Hydrogen joint program support this special session. Moreover this special session is also partially supported by the European Union's Seventh Framework Program for the Fuel Cells and Hydrogen Joint Technology Initiative under the project PUMA MIND (grant agreement no 303419).