



## Advanced materials and electrochemical energy conversion devices

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### ABSTRACT

Hydrogen technologies are a keystone in the effort to create an integrated, competitive and environmentally friendly European energy market. Fuel cells are the most attractive source of energy for many applications, as they are characterized by simplicity in construction, high efficiency and flexibility. Very important issues for the introduction of technology in the market are cost, competitive performance, but also reliable and long-term stable operation.

Representative sections of our research activities will be presented including novel materials, efficient and reliable devices and integrated systems. Among others, the research concerns the development of highly active electrocatalysts, but also catalytic layers with a structure that leads to an extended and stable electrochemical interface, high catalyst utilization and reduced CRM (Pt) loadings<sup>1-3</sup>. In this endeavor, it is essential to understand electrocatalysis and processes at the electrochemical interfaces. This understanding leads to the rational design of materials and devices.

In addition, our research activities are extended to the level of the final power generation systems (up to 2 kW) with the design of the individual components, the construction and the study of the operation of the fuel cell stacks.

### REFERENCES

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