

Portuguese Section - Combustion Research Report (2014-15)

The C.I Portuguese Section,, with background on experimental and mathematical/physical modeling of Thermal-fluid-dynamics, Combustion and Advanced Techniques for Flow Measurements, is focused in understanding the fundamental relationship between concurrent thermodynamic transports phenomena involved in energy conversion processes. Within this framework, the Members Section is now combining efforts in developing mathematical/physical models to downsize of energy conversion systems and to explore “new” type of fuels (e.g. biomass derived fuels). In one side we are interested in investigating flow phenomena occurring in microfluidic devices, with and without chemical reaction, towards the development of new theoretical and empirical models for micro-scale flow phenomena, as well as on the design on new practical systems. On the other side the systematic analysis of different burning designs to assist the use of biomass fuels is top priority for further control of pollutant emission. It is a multidisciplinary research field, combining branches of physics, mechanics, optics and fluid dynamics with chemistry.

The general objective is to develop and use different tools and new approaches to support the development of fundamental knowledge and development of energy sustainable products towards consumers.

The main topics of activity are as follows:

- Liquid Spray Technologies for Combustion technologies
- Lean Combustion and Aerothermoacoustic
- Large scale furnace analysis
- Numerical Modelling

ORGANISATION OF AND PARTICIPATION IN SCIENTIFIC COMMITTEES OF INTERNATIONAL CONFERENCES

SPEIC14: Towards Sustainable Combustion.

Instituto Superior Técnico, Lisboa, Portugal, 19-21 November 2014.

- 12th International Conference on Energy for a Clean Environment
Instituto Superior Técnico, Lisboa, Portugal, 5-9 July 2015.
- 18th International Symposium on Application of Laser and Imaging Techniques to Fluid Mechanics. Lisboa, Portugal, 11-14 July 2016.

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