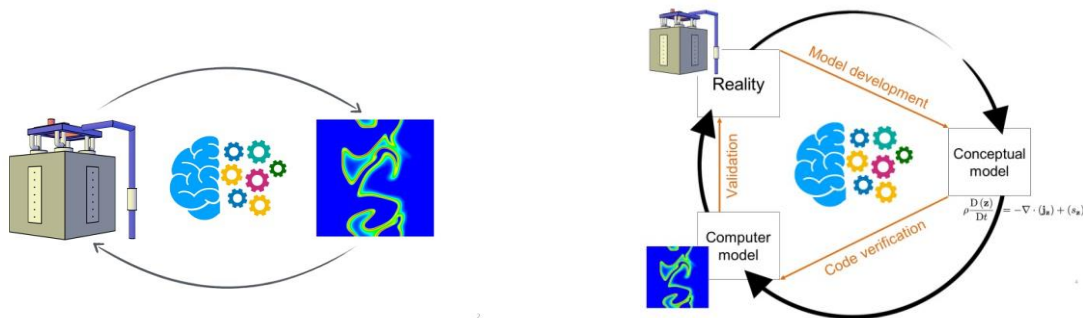




ERCOFTAC Course:

**Best Practices Guidelines for CFD of Turbulent Combustion
including an introduction to machine learning tools for chemistry reduction and
error estimation.**

Université Libre de Bruxelles, Avenue Franklin Roosevelt 50, 1050 Bruxelles



Background and objectives:

Design and operation of modern combustion systems (gas turbine engines, IC engines, and process furnaces) faces the need to combine high efficiency with low pollutants emissions. Computational Fluid Dynamics has become a powerful tool in design of these systems.

Many numerical models exist, each having a range of applicability, computational cost and accuracy. Consequently, CFD experts involved in combustor simulations, in addition to usual CFD skills, need specific insight and knowledge in combustion, heat transfer and emission modelling in order to conduct thorough analysis. They must be able to respond to societal demands (e.g. larger role for hydrogen as fuel) or opportunities from other fields (data science, machine learning). The present course addresses this need.

The participants will learn the best practices in CFD of combustion systems. They will discover how to select models, how to validate numerical simulations, and which accuracy to expect.

After the introduction to turbulent combustion modelling fundamentals, the course will focus on latest trends in the use of machine-learning based approaches to improve the understanding of turbulent reacting flow and develop more efficient and accurate numerical models. The lectures of this course, all by well-known experts in the field, cover from basics to applications.

The course is partially based on the ERCOFTAC Best Practice Guide on CFD of combustion, a copy of which will be provided to the participants.

In the course also the link will be made with the CFD programs and cases of interest for the participants. As a result, the course provides the means for CFD analysts to significantly enhance their use of commercial and open-source CFD software for combustion engineering applications.

Lecturers:

- Prof. Dirk Roekaerts, Delft University of Technology.
- Prof. Luc Vervisch, National Institute of Applied Sciences, Rouen Normandy University.
- Prof. Heinz Pitsch, RWTH Aachen.
- Prof. Alberto Cuoci, Politecnico di Milano.
- Prof. Alessandro Parente, Université Libre de Bruxelles.

Participation fee:

ERCOFTAC Members: €400

ERCOFTAC Members (PhD students): €300

Non-members: €900

The following cancellation charges apply:

- 90 days prior event - 30% of the fee per person;
- 60 days prior event - 50% of the fee per person;
- 30 days or less prior event - full fee per person.



TO REGISTER: Please send your details to: admin@cado-ercoftac.org

DEADLINE FOR REGISTRATION: 1st December 2019

