



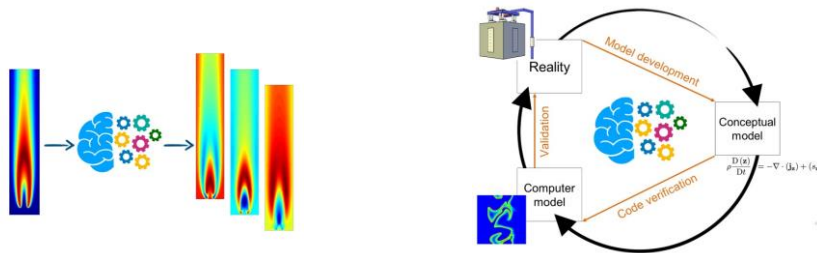
**ERCOFTAC**  
European Research Community On  
Flow, Turbulence And Combustion

**ULB** UNIVERSITÉ  
LIBRE  
DE BRUXELLES

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



**PROGRAMME:**

**Wednesday, December 11, 2019**

**Day 1: Best practices guidelines for CFD of turbulent combustion & introduction to data-driven approaches**

8:30	<b>Registration and welcome</b>	
9:00	<b>Basis of turbulent combustion modeling</b>	<b>Luc Vervisch</b>
10:00	<b>Modeling pollutant emissions and NOx reduction</b>	<b>Luc Vervisch</b>
10:30	<b>Refreshments</b>	
11:00	<b>Validation of CFD models for conventional and MILD combustion</b>	<b>Dirk Roekaerts</b>
12:00	Discussion	
12:30	<b>Lunch</b>	
13:30	<b>Validation of CFD models for turbulent combustion of sprays</b>	<b>Dirk Roekaerts</b>
14:30	<b>Introduction to use of machine learning in combustion</b>	<b>Alessandro Parente</b>
15:30	<b>Refreshments</b>	
16:00	<b>Examples of feature extraction, regression and model reduction for combustion applications</b>	<b>Alessandro Parente</b>
17:00	<b>Final discussion</b>	
17:30	<b>Close</b>	

**Evening: course dinner**

Thursday, December 12, 2019

**Day 2: CFD for physics-informed, data-driven models in combustion**

8:30	<b>Registration and welcome</b>	
9:00	<b>Machine-learning based techniques for error estimation in combustion modelling</b>	<b>Heinz Pitsch</b>
10:00	<b>Improving the fidelity of turbulent combustion simulations using machine learning</b>	<b>Heinz Pitsch</b>
11:00	<b>Refreshments</b>	
11:30	<b>Chemistry reduction in combustion simulations using unsupervised classification and mechanism reduction I</b>	<b>Alberto Cuoci</b>
12:30	<b>Lunch</b>	
13:30	<b>Chemistry reduction in combustion simulations using unsupervised classification and mechanism reduction II</b>	<b>Alberto Cuoci</b>
14:30	<b>Mini workshop on combustion CFD applications:</b> Participants and lecturers are invited to give a short presentation on a combustion CFD application using the CFD tools of their interest, with emphasis on challenging issues. The discussion will focus on which best practices can be identified for the presented cases.	<b>Alessandro Parente</b>
16:00	<b>Final conclusions and closure</b>	

**Participation fee:**

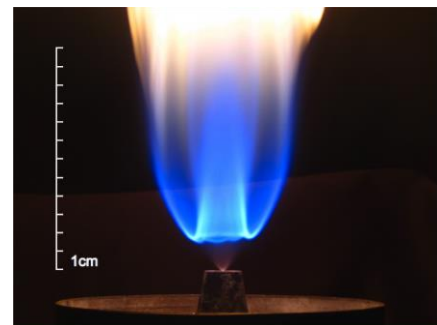
ERCOFTAC Members: €400

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](mailto:admin@cado-ercoftac.org)

**DEADLINE FOR REGISTRATION: 1st December 2019**