Registration

www.ercoftac.org

Location

GE Global Research Centre
Freisinger Landstrasse 50
D-85748 Garching b. Munich
Germany

The GE Global Research centre is located on the outskirts of Munich with excellent access to the centre and Munich Airport by the autobahn, ring road and train networks.

Course fees

€640 ERCOFTAC members
€995 Non-ERCOFTAC members

This fee includes: seminar registration, seminar material, lunch, refreshments and seminar dinner. Please note that accommodation is not included in this fee.

For further information and registration:

Please visit www.ercoftac.org

Or please contact Dr. Richard E. Seoud:
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Flame Stabilisation for Industrial Burners

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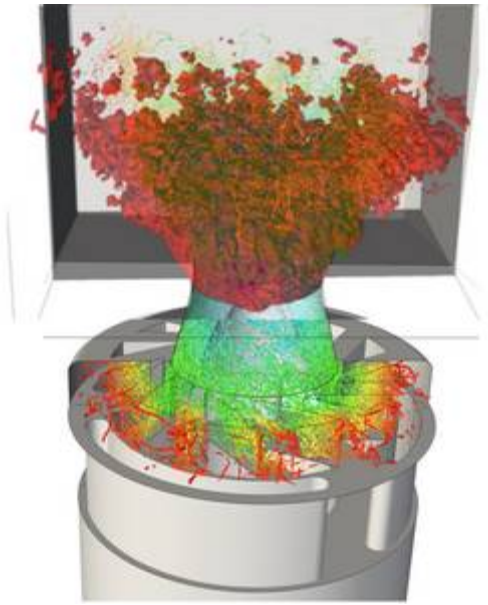

Course Coordinator : Prof. Dirk Roekaerts

26-27 September 2011

GE Global Research Centre, Munich, Germany

Information

ERCOFTAC, a leader in applied fluid mechanics, is proud to announce a two day course on *'Flame Stabilisation for Industrial Burners'*.

The objective of this 2-day course is to bring the participants to the forefront of modern insights on flame stabilization in industrial burners. Creation of a stable flame always has been one of the design requirements of burners in e.g. furnaces and gas turbines. But the aim to reduce emissions by burning in extremely lean conditions or by exploiting unconventional mixing scenarios has brought the topic of flame stabilization high on the list of challenges in burner design and operation. In this course first an overview of burner types and flame stabilization methods is given, with the underlying design principles and the resulting scaling rules. The required performance of a burner in relation to power, heat flux and emission is put in the perspective of various applications in power generation and petrochemical and metallurgical heating processes. Then modern computational and experimental tools for the investigation of flames are described, with special emphasis on flame stability. Results of the application of advanced CFD methods to real applications will be presented. In a round table discussion the topics of most interest to the participants will be discussed.

The technological challenge is to design a burner with guaranteed ultra-low emissions of NOx, soot and unburned hydrocarbons and with stably burning flames for the whole range of operating conditions. An underlying scientific challenge is the understanding of turbulence-chemistry interaction. Among the questions to be addressed are: Which flow phenomena have the greatest influence on flame stabilization? How are they represented in computational models? What are the essential advantages of large eddy simulation (LES) compared to Reynolds Averaged Navier-Stokes (RANS) simulations? What can we learn from Direct Numerical Simulation (DNS)? What can we learn from advanced laser diagnostics? How far are we in laboratory studies from real scale applications and how far are we in applying our models to real applications? What is the impact of new developments on scaling rules of future combustion systems?

The course is intended for researchers in industry, equipped with a firm basic knowledge in fluid mechanics, heat transport and combustion science, who want to build up or widen their knowledge on modern computational and experimental tools for burner design. Combustion researchers from academia interested in learning more about the opportunities for industrial application are also welcome.

Lecturers

Prof. Dirk Roekaerts,
Delft University of Technology

Prof. Luc Vervisch
NSA Rouen & CNRS - CORIA, France

Prof. Epaminondas Mastorakos,
Cambridge University , UK

Prof. Andreas Dreizler
Darmstadt University of Technology, Germany

Dr. Laurent Gicquel,
CERFACS, France

Programme

Monday 26 September 2011

9:00	General Principles of Burner Design	Prof. D. Roekaerts
10:15	Refreshments	
10:45	Experimental techniques I	Prof. A. Dreizler
12:00	Lunch	
13:00	Experimental techniques II	Prof. A. Dreizler
14:00	Scaling rules for different burner designs I	Prof. D. Roekaerts
15:15	Refreshments	
15:45	Scaling rules for different burner designs II	Prof. E. Mastorakos
16:45	**Q & A Session**	

Tuesday 27 September 2011

9:00	Relation between flow-chemistry interaction and extinction and ignition	Prof. E. Mastorakos
10:15	Refreshments	
10:45	Modelling methods I - Backgrounds and challenges in turbulent combustion modelling	Prof. L. Vervisch
12:00	Lunch	
13:00	Modelling methods II - Established and emerging modelling tools for burner design	Prof. L. Vervisch
14:00	Modern developments - LES on real configurations	Dr. L. Gicquel
15:15	Refreshments	
15:45	Modern developments - LES on real configurations & flameless combustion	Dr. L. Gicquel Prof. D. Roekaerts
16:45	**Q & A Session**	
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