

# Registration

[www.ercoftac.org](http://www.ercoftac.org)

## Location

**Innventia AB,  
Drottning Kristinas v. 61, Box  
5604, 114 86 Stockholm**

Stockholm is the capital city of Sweden, with many of the amenities a metropolis has to offer. Stockholm can be accessed by air from Arlanda, Bromma or Skavsta airports. Transport from airports to city town centre are available via train, bus or taxi.



## Course fees

€550 ERCOFTAC and SIAMUF members  
€995 Non-ERCOFTAC and Non-SIAMUF members

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

**For further information and registration:**

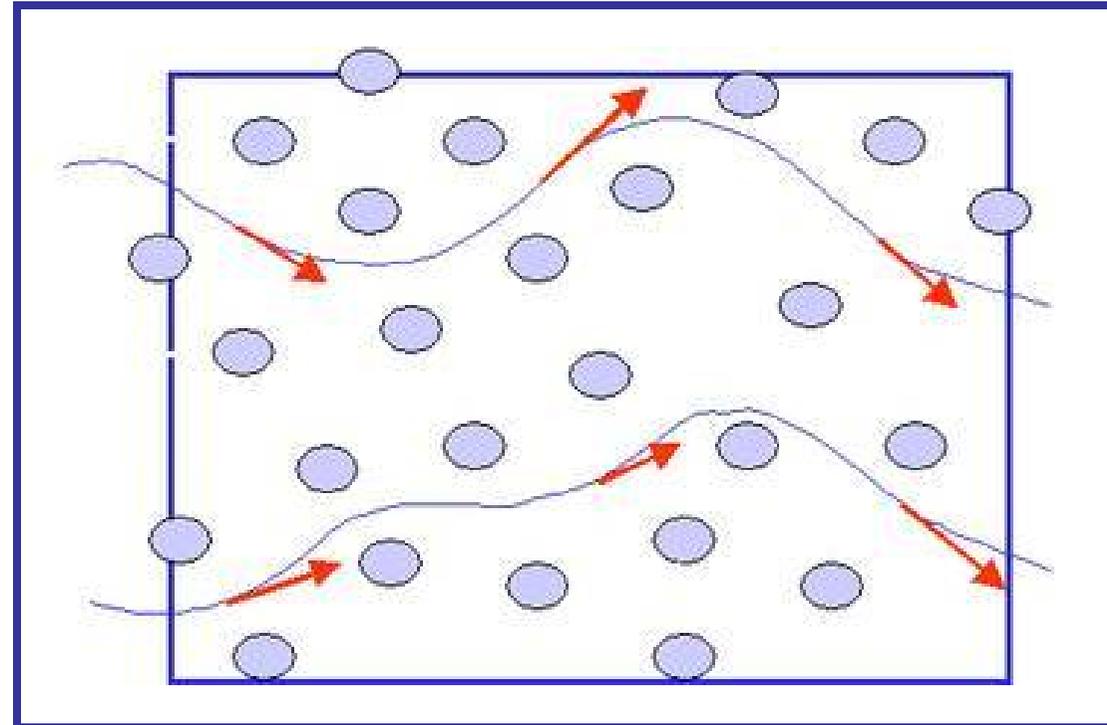
**Please visit [www.ercoftac.org](http://www.ercoftac.org)**

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**Best Practice Guidance Series**  
*CFD for Dispersed Multi-Phase Flows*

[www.ercoftac.org](http://www.ercoftac.org)



**Course Coordinator: Prof. Martin Sommerfeld**

**7 - 8 June 2011**

**Innventia AB, Stockholm, Sweden**

# Information

**ERCOFTAC**, in collaboration with **SIAMUF**, are proud to announce the first course on 'CFD for Dispersed Multi-Phase Flows', as part of the **ERCOFTAC Best Practice Guidance Course Series**.

The simultaneous presence of several different phases in external or internal flows such as gas, liquid and solid is found in daily life, environment and numerous industrial processes. These types of flows are termed multiphase flows, which may exist in different forms depending on the phase distribution. Examples are gas-liquid transportation, crude oil recovery, circulating fluidized beds, sediment transport in rivers, pollutant transport in the atmosphere, cloud formation, fuel injection in engines, bubble column reactors and spray driers for food processing, to name only a few. As a result of the interaction between the different phases such flows are rather complicated and very difficult to describe theoretically. For the design and optimisation of such multiphase systems a detailed understanding of the interfacial transport phenomena is essential.

This course is rather unique as it is one of few in the community that is specifically designed to deliver, a) a best practice guidance and b) the latest trends in the CFD for dispersed multi-phase flows.

The course would appeal to researchers and engineers involved in projects requiring CFD for (wall-bounded) turbulent dispersed multiphase flows with bubbles, drops or particles.

## Lecturers

Prof. Martin Sommerfeld  
University Halle-Wittenberg, Germany

Prof. René Oliemans  
Delft University, The Netherlands

Prof. Berend van Wachem  
Imperial College, UK



# Programme

## Tuesday 7 June 2011

- |       |  |                                     |
|-------|--|-------------------------------------|
| 12:00 | Industrial challenges for computational turbulent dispersed multiphase flows, introduction to the course | Prof. R. Oliemans                   |
| 13:15 | Lunch  |                                     |
| 14:00 | Forces on particles, droplets and bubbles (part 1)   | Prof. M. Sommerfeld                 |
| 15:15 | Forces on particles, droplets and bubbles (part 2)   | Prof. M. Sommerfeld                 |
| 16:30 | Refreshments   |                                     |
| 16:50 | Modelling issues in dispersed multi-phase flows (part 1)   | Prof. M. Sommerfeld & B. van Wachem |
| 17:50 | Refreshments   |                                     |
| 18:10 | Modelling issues in dispersed multi-phase flows (part 2)   | Prof. M. Sommerfeld & B. Van Wachem |
| 19:20 | Close  |                                     |
| 20:00 | Course dinner  |                                     |

## Wednesday 8 June 2011

- |       |   |                                     |
|-------|---|-------------------------------------|
| 9:00  | Summary of numerical methods for multi-phase flow           | Prof. M. Sommerfeld & B. Van Wachem |
| 10:20 | Euler/Lagrange approach                                     | Prof. M. Sommerfeld                 |
| 11:40 | Refreshments  |                                     |
| 12:00 | Euler/Euler approach  | Prof. B. Van Wachem                 |
| 13:00 | Lunch   |                                     |
| 14:00 | Test case calculations and examples of application (part 1) | All                                 |
| 15:15 | Refreshments  |                                     |
| 15:45 | Test case calculations and examples of application (part 2) | All                                 |
| 17:00 | Close   |                                     |