# Half a day special "Workshop on heat exchangers – key equipment for process and power industries"

***organized within CHISA/PRES***

In general process heat transfer is regarded as a subject peripheral to process/chemical and power engineering; a subject to be handled by thermal specialist or mechanical engineering. However, increasing requirement of operating chemical processes with minimum energy spent, maximising the product output and keeping within the ever stringent regulatory requirements mean that process engineers need to use their core knowledge of chemical engineering to get the maximum out of heat transfer processes when they directly impact chemical processing.

## Objective:

The objective of the Workshop is bring to attention of engineers the benefits of getting involved in design of heat exchangers, their processing and simulating them rigorously along with other process plant equipment and to discuss new promising trends in the field.

## Contents:

In addition to imparting background technology knowledge to the chemical engineers on design and simulation of heat exchangers, the Workshop will make use of case studies involving process and thermal equipment simulation. In this context a number of process heat transfer topics will be discussed, for example:

- Using high performance compact heat exchangers to advantage
- Enhanced, compact and ultra-compact heat exchangers
- Heat exchanger networks
- High temperature applications
- Manufacturing aspects
- Fouling issues
- Exploiting close links between distillation column and reboiler
- Using plate heat exchanger as cost effective alternative to conventional exchanger

## Course Directors:

- Vishwas Wadekar (UK)
- Petr Stehlik (CZ)
- Jiri Klemes (HU)
- Qiuwang Wang (CN)

## Lecturers:

Jiri Hajek, Zdenek Jegla, Petro Kapustenko, Jiri Klemes,
Petr Stehlik, Vishwas Wadekar, Qiuwang Wang

**Lecture topics:**

- Process heat exchangers
  - Classification based on area density
  - Benefiting from compact heat exchanger technology
  - Plate heat exchanger as alternative to conventional equipment
  - Plate heat exchangers – industrial applications
- High temperature heat exchangers
  - Introduction and general features
  - Examples of heat recovery applications
  - High performance recuperators for micro-gas turbines
- Modelling of heat exchangers
  - Modelling complex multistream plate-fin heat exchanger
  - Overview of numerical techniques (including ANN, GA etc)
  - Heat exchanger networks synthesis and optimization
  - Fluid flow and heat transfer modelling in heat exchanger design