Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Energy Science Center

Institute of Energy Technology – Professorship of Renewable Energy Carriers

Invitation to a Seminar

Date: Monday, December 6, 2010
Time: 15:00-16:00
Place: Maschinenlaboratorium ETH Zürich, ML-J25/26

Speaker: **Professor Graham 'Gus' Nathan**
Director, Centre for Energy Technology
Professor in Mechanical Engineering
The University of Adelaide, Australia

Title: **Developments & applications of laser diagnostic techniques in direct heat exchange solar reactors**

Abstract - That seminar will introduce the Centre for Energy Technology, explaining our interest in hybrid power technologies and in solar thermal reactors, especially for minerals processing and fuels processing. Particular emphasis will be given to our developments of laser diagnostic methods in turbulent reacting systems in which radiation is the dominant mode of heat transfer. It will introduce Two Line Atomic Fluorescence, which can measure temperature in the presence of fine particles, such as soot. It will also introduce single-shot corrections for laser attenuation that can be applied in heavily loaded particulate streams. These can be used to simultaneously measure all components of radiation propagation through such media. Finally it will present some recent results in which the interactions between concentrated solar radiation and a flame are simulated and investigated using laser diagnostic methods.

Brief Biography – Professor Nathan is the founding Director of The University of Adelaide's Centre for Energy Technology. He is experienced in both the science and application of thermal energy systems. spanning solar, geothermal and the combustion of fossil and bio-fuels. He was principal leader of the Chief Design Team for the award winning fuel and combustion system for the Sydney Olympic Relay Torch and has jointly led the development of low NOx combustion technology in rotary cement kilns. His research specializes in the development and application of laser diagnostic methods to complex turbulent reacting flows.

Host: Prof. A. Steinfeld
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