Boiling Heat Transfer

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Overview

Many engineering applications involve phase change i.e., condensation or boiling. Boiling is the most effective heat transfer method as it shows high performance due to latent heat transport. It allows to reduce size, weight and volume of heat exchange devices and improve the thermal performance of components for the process industry and power plants. Hence, boiling heat transfer plays a very important role for a wide number of applications in many technological and industrial areas, including energy production. In addition very compact heat exchangers can be manufactured due to the high heat transfer rate obtained with boiling heat transfer. Also, steam generators can be better designed if the boiling heat transfer is known in detail. Rate of boiling heat transfer is influenced by the magnitude of gravity through bubble dynamics and associate subprocesses. Boiling is a very efficient way to cool engineering components and systems used in the extreme environments of space.

This course is organized in two modules that should be taken together. The topics in Module A will expose the participants to the basics of boiling heat transfer and numerical approach to simulate bubble growth. In Module B, participants will learn about boiling heat transfer under microgravity conditions.

Course participants will learn these topics through lectures. Also case studies and assignments will be shared to stimulate research motivation of participants.

Modules	**A: Basics of Boiling Heat Transfer : May 23 - May 27** **B: Boiling Heat Transfer under Microgravity Conditions R : May 30 - June 03** **Number of participants for the course will be limited to fifty.**
You Should Attend If…	▪ Engineers engaged in power and process equipment design, with some general background in heat transfer and fluid mechanics can attend this course. ▪ Students or faculty members from academic institutions interested in learning two phase flows and boiling phenomenon.
Fees	The participation fees for taking the course is as follows: **Participants from abroad : US $500** **Industry/ Research Organizations: Rs. 30000** **Academic Institutions:** **Student Participants: Rs 1000** (Refundable subjected to joining of course) **Faculty Participants: Rs 10000** The above fee include all instructional materials, computer use for tutorials and assignments, laboratory equipment usage charges, 24 hr free internet facility. The participants will be provided with accommodation on payment basis.

The Faculty

Prof. Vijay K Dhir, distinguished professor of Mechanical and aerospace Engineering, is dean of the Henry Samueli School of Engineering and Applied Science at the University of California, Los Angeles. His areas of interest are two-phase heat transfer, boiling and condensation, thermal and hydrodynamic stability, thermal hydraulics of nuclear reactors, microgravity heat transfer.

Prof. Gautam Biswas, Professor and JC Bose National Fellow at the Insdian Institute of Technology. He is currently Director of Indian Institute of Technology Guwahati, India. His research interests include computational fluid dynamics, convective heat transfer, turbulence, boiling heat transfer and free surface flows.

Dr. Amaresh Dalal is an Associate Professor of Indian Institute of Technology, Guwahati. He has research interests in the area of computational fluid dynamics and heat transfer, finite volume methods and unstructured grid techniques, multiphase flows, natural and mixed convection flows.

Course Co-ordinators

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