



**TIFR Centre for Interdisciplinary Sciences,  
Narsingi, Hyderabad 500075**

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## **Seminar**

**Unravelling Complex Multiphase Flows by Means of Ultra-  
High Resolution DNS**

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**Abstract:** In this talk I will focus on three industrial examples demonstrating rigorous multiphase DNS and analytical tools that my group has developed. Complex combinatorial transport phenomena such as heat and mass transport are integral to these examples which include microelectronic cooling via phase change, post-combustion carbon capture and hydrate flows in subsea pipelines. I will discuss some new physical insights that are being revealed and how these might significantly affect the engineering design. I will also introduce a newly launched open-source Two-Phase Level Set (TPLS) Solver. TPLS is a highly advanced 3D DNS flow solver to simulate single/multiphase flows at unprecedented detail, speed and accuracy.

**Date: Tuesday, Sep 3<sup>rd</sup> 2013**

**Time: 11:30AM (Tea/Coffee at 11:15AM)**

**Venue: Conference Hall, TCIS**

***All are cordially invited***