

## **Dr. Sunando DasGupta**

*Professor of Chemical Engineering*

*Head of the Advanced Technology Development Centre*

*Indian Institute of Technology Kharagpur, India*

### **Field-assisted Contact Line Motion in Droplets and Thin Films**

**Abstract:**

The talk will focus on microscale transport processes at the contact line region of droplets and also in extended menisci of thin liquid films under the influence of external perturbations. The examples will encompass droplet motion on a surface with chemical energy induced wettability gradient, electrically actuated transport dynamics of colloidal droplets, electrowetting of partially wetting thin nanofluid films, influence of liquid polarity and particle size on the contact line dynamics of colloidal thin film and magnetowetting of ferrofluidic thin liquid films. The phenomena at the contact line are probed using non-obtrusive optical methods, analytical models and molecular dynamics simulation to highlight the underlying physics of movement near the solid-liquid interface and exploring the effect of contact line friction.

**Bio:**

Professor Sunando DasGupta is presently a professor of Chemical Engineering and the Head of the Advanced Technology Development Centre at the Indian Institute of Technology Kharagpur, India. Prof. DasGupta obtained his PhD from the Rensselaer Polytechnic Institute, USA. His major research interests are in the fields of digital microfluidics, microscale transport processes and the design and development of miniature heat spreaders for cooling of electronic components. Prof. DasGupta is a Fellow of the National Academy of Engineering India, has received the prestigious Herdillia Award (2008) by the Indian Institute of Chemical Engineers for excellence in Basic Research in Chemical Engineering and is a Senior Associate of the Abdus Salam International Centre for Theoretical Physics, Trieste, Italy.



**Faculty Host:** Professor Justin Weibel. If you would like to meet Dr. DasGupta please contact Prof. Weibel at [jaweibel@purdue.edu](mailto:jaweibel@purdue.edu) or Maggie at [hao41@purdue.edu](mailto:hao41@purdue.edu) to see if we can accommodate your request within his schedule.