

Contact Angles: Measurements, Interpretation and Modern Applications

Overview

Surfaces and coatings with controlled wetting characteristics have immense scientific and technological potential. Terms such as *superhydrophobicity* and *superhydrophilicity* were introduced to describe exceptionally weak and strong, respectively, interactions of materials and coatings with bulk water, controlled entirely by surface topography and material chemistry. Although manipulation of surface characteristics is nothing new, and was explored by the mineral processing and textile industries several decades ago, a renewed interest in surfaces/coatings of controlled wettability has been driven by an emerging market for products with engineered surfaces. Some common examples include water-repellant, snow- and ice-phobic products and formulations, water anti-fogging screens, windows and lenses, anti-fouling coatings, microfluidic devices, coatings for enhanced boiling heat transfer, foils for food packaging, and many others. The popularity of this sub-discipline of surface chemistry can also be attributed to the simplicity of contact angle measurements, although both measurements and interpretation of contact angles are often obfuscated by wide-spread misconceptions and misunderstandings. In this one-week course, the physics behind wetting phenomena on solid surfaces will be taught in detail, along with a discussion on new developments and modern applications of contact angle and wetting phenomena concepts. Course participants will learn these topics through lectures and case studies.

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| Dates for the Course | 29th January 2017 – 4th February 2017 |
| Host Institute | IIT Madras |
| No. of Credits | 1 |
| Maximum No. of Participants | 40 |
| You Should Attend If... | <ul style="list-style-type: none">▪ You are from the industry interested in understanding materials-specific wettability issues, coating formulations and surface engineering▪ You are a student or faculty from an academic institution interested in surface chemistry, characterization, measurements and interpretation |
| Course Registration Fees | <p>The participation fees for taking the course is as follows: Student Participants: Rs.1000 Faculty Participants: Rs.2000 Government Research Organization Participants: Rs.3000 Industry Participants: Rs.5000</p> <p>The above fee is towards participation in the course, course material, tutorials and assignments, and laboratory equipment usage charges.</p> <p>Mode of payment: Demand draft in favour of “Registrar, IIT Madras” payable at Chennai The demand draft is to be sent to the Course Coordinator at the address given below.</p> |
| Accommodation | <p>The participants may be provided with hostel accommodation, depending on the availability, on payment basis. Request for hostel accommodation may be submitted through the link: http://hosteldine.iitm.ac.in/iitmhostel</p> |

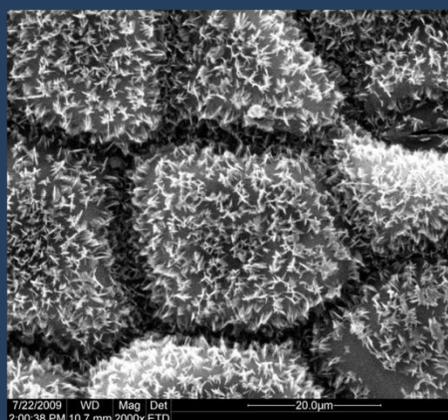
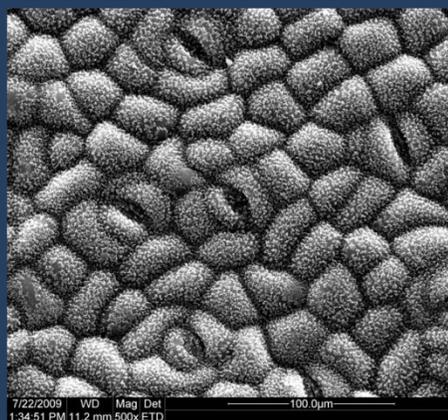
Course Faculty



Jaroslaw W. Drelich is a professor in the Dept of Materials Science and Engineering, Michigan Technological University, USA. He obtained his PhD in metallurgical engineering from the University of Utah, USA in 1993. His research interests include in applied surface chemistry and interfacial engineering for ore dressing and materials processing, nanotechnology, materials recycling, characterization of materials' surfaces, formulation of antimicrobial materials, and biomaterials. He is the founder and editor-in-chief of the journal "Surface Innovations".



Ravi Kumar N V is an associate professor in the Dept of Metallurgical & Materials Engineering, Indian Institute of Technology-Madras (IIT Madras). He obtained his doctorate degree in materials science from the Max Planck Institute, Stuttgart, Germany in 2004. His research interests include bioadhesion & biomimetics, surface characterization using diffraction & spectroscopic techniques, processing & characterization of structural and functional ceramics.



Course Coordinator

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