

Symposium on Fabrication at Small Scale (FASS) and Indo-US Conference on Fabrionics: Science of Advanced Fabrication

9 - 12th December 2009

An Indo-US conference on Fabrionics was organized to bring together scientists from various areas such as nanoscience and technology, manufacturing engineering, micro-fabrication technology, biology and energy systems. A key strength of the meeting was the scientific presentations given by the various scientists from mechanical engineering, chemical engineering, chemistry, physics and biology.

The conference focused on fabrication, structures and properties on micro-nano scales: soft materials, self-assembly, self-organization and novel functionalities. The basic research themes were:

1. Fabrication on small scale: From top down to self assembly
2. Synthesis and fabrication of functional materials and interfaces
3. Mechanics on small scale during self assembly and small scale fabrication processes.
4. Fabrication of Bioplatfoms: MEMS/ NEMS/ Microfluidics
5. Materials and devices for energy and environment

Numerous presentations on nanoscience and technology highlighted the diverse areas of biosensors, fuel cells, solid-state lighting, and drug delivery research and opened up new avenues of exploration. There were talks on the changing landscape of manufacturing, desktop sized factories and miniaturization. This trend would redistribute manufacturing capability from a capital and energy intensive focus in the hands of a few to a low cost energy efficient enabling technology in the hands of the many. Presentation on BioMEMS showed how miniaturization science can be used to solve chemical and biological problems with an emphasis on molecular biology and energy, problems which include medical diagnostics, sensor technology, micro-battery development, and novel drug delivery systems among others. Some talks emphasized the importance of the development of Microfluidic Compact Discs, Carbon-MEMS devices and Electroactive Polymer substrates.

The conference helped to explore the cutting-edge of micro/nano fabrication and functions, which is a highly interdisciplinary and multidisciplinary area with equal interest across many departments such as Materials and Metallurgical Engineering,

Materials Science, Biosciences, Chemistry, Physics, Chemical Engineering, Mechanical Engineering and Electrical Engineering.

Amidst all the intellectual discussions and talks, a cultural program was organized on the 10th and 11th of December where the participants were treated to Astaad Deboo's dynamism, a man with a highly energetic and individualistic dance style. He gave two performances - *Breaking Boundaries* and *Rhythm Divine* - with his troupe. For further details of this program please refer to the **Cultural Events** section.

The conference was supported by the IIT Kanpur Golden Jubilee fund, the Indo-US Center for Research Excellence in Fabricionics (funded by the Indo-US Science and Technology Forum, Delhi) and the National Science Foundation, USA.