

## Announcement of Special Seminar

Date: Wednesday, 22<sup>nd</sup> October 2008

Time: 16:00 – 17:30

Venue: R2-319 (Meeting room)

### **NANOSTRUCTURES IN ENGINEERING APPLICATIONS**

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Many physical, chemical and mechanical properties of nanostructured polycrystalline materials strongly depend on structure of interfaces and crystallographic texture. It is therefore important to understand how structure can be controlled to optimize these properties. Such understanding often requires approaching the engineering problems at atomistic, mesoscopic and microscopic levels to predict macroscopic properties of materials and to understand how various nanodevices work.

In this presentation fundamentals of description of structure of polycrystalline materials will be briefly discussed and examples of applications of nanostructured materials in energy, electronic and biomedical fields will be presented.

These examples are selected to illustrate the research on stability of structure of nanocrystalline materials and mechanical properties related to fracture and hydrogen embrittlement. Other examples illustrate design of novel nanostructured membranes for hydrogen extraction and purification. Applications in electronic industry are focused on research on failure of electronic interconnects. Finally, novel biomedical applications of nanomaterials are discussed.

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