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The Hong Kong University of Science and Technology

Department of Mathematics

Seminar on Applied Mathematics

Characterizing Dislocation Patterns in Interphase Interfaces

By

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Abstract

Interfaces are common planar defects in solids. Interface can act as barriers, sinks and sources for other defects. By tailoring interface structures and properties, materials can be designed to achieve unusual properties, such as high strength, good ductility, high toughness, and high irradiation tolerance. This can be accomplished through two steps: (1) Discover unusual mechanical behavior (e.g., high strength and good ductility) of nanostructured composites, and Develop theory and fundamental understanding of unusual mechanical behavior. (2) Transform fundamental understanding of structural characters and deformation physics of nanostructured composites into a mesoscale capability of discovering, predicting, and designing superior nanostructured materials (strength, ductility, toughness, radiation). To achieve this goal, multi-scale methods including experiment and theory and modeling are necessary. In this talk, I will present fundamental principles in characterizing interface dislocations, correlating interface dislocations with plastic deformation mechanisms, and developing multiscale material modelling tools for predicting mechanical response of interface-dominated composites.

Date: Thursday, 22 December 2016

Time: 11:00a.m. - 12:00noon

***Venue: Room 3472, Discussion Room
(near Lifts 25&26), HKUST***

All are welcome!