The Hong Kong Polytechnic University
Department of Applied Mathematics

Colloquium

Recent Developments in Computational Modeling of Nucleation in Phase Transformations

by

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Abstract

Nucleation is one of the most common physical phenomena in physical, chemical, biological and materials sciences. Due to the difficulties and challenges in making direct experimental observation, many computational methods have been developed to model and simulate various nucleation events. In my talk, I will provide a sampler of some newly developed numerical algorithms that are widely applicable to many nucleation and phase transformation problems. I first describe some recent progress on the design of efficient numerical methods for computing saddle points and minimum energy paths, and then illustrate their applications to the study of nucleation events associated with several different physical systems. Nucleation is a complex multiscale problem. Development of efficient numerical algorithms and modeling approaches is bringing new light to this challenging subject.

Date : 4 May, 2016 (Wednesday)
Time : 11a.m. – 12noon
Venue : TU801, The Hong Kong Polytechnic University

*** * * ALL ARE WELCOME * * ***