



The Hong Kong University of Science and Technology

Department of Mathematics

Seminar on Applied Mathematics

Morphological evolution of crystal surfaces below the roughening temperature: from mesoscopic and macroscopic view

By

Dr. Yuan GAO
HKUST

Abstract

During the heteroepitaxial growth on vicinal surface, step-flow is one of various structures created on crystal surfaces. Understanding and mastering the thin film growth is a major challenge of materials science. We first introduce the step flow dynamics for mesoscopic models and their continuum limit to 4th order degenerate parabolic equations. Then we use the regularized method to obtain a global weak solution to the slope equation, which is sign-preserved almost everywhere. Further, using the maximal monotone operator in non-reflexive space, we investigate the singularity when the solution approaches zero. The established framework can be applied to a wide class of degenerate parabolic equations.

Date: Thursday, 15 June 2017

Time: Thursday, 4:00 p.m. - 5:00 p.m.

***Venue:** Thursday, Room 2130B,
Academic Building (near Lift 19), HKUST***

All are welcome!