THE UNIVERSITY OF HONG KONG

Institute of Mathematical Research
Department of Mathematics

COLLOQUIUM

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

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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. This is a joint work with Yuan Gao from HKUST.

Date:	June 28, 2017 (Wednesday)
Time:	2:00 – 3:00pm
Venue:	Room 210, Run Run Shaw Bldg., HKU

All are welcome