THE HONG KONG UNIVERSITY OF SCIENCE & TECHNOLOGY

Department of Mathematics

SEMINAR ON APPLIED MATHEMATICS

A moving contact line model on elastic membrane

By

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Abstract

Young's law is a successful theory in the study of contact angle at the three-phase contact line on a rigid solid substrate. When the solid substrate is soft and deformable, the situation is more complicated. We propose a new mathematical model for the moving contact lines on an elastic membrane. Both static and dynamic models are derived from the consideration of energy law. The local deformation of the membrane at the contact line breaks the regularity of the membrane surface. The discontinuity in the derivative of the mean curvature generates a singular force at the contact line and a new contact angle condition arises. Both asymptotic analysis and numerical simulations show a clear boundary layer structure near the contact line for extremely soft membrane.

Date   : **13 December, 2019 (Friday)**
Time   : **3:00pm – 4:00pm**
Venue : **Room 4475, Academic Building**
          (Lifts 25-26), HKUST

All are Welcome!