



CHEMICAL AND BIOLOGICAL ENGINEERING DEPARTMENT SEMINAR SERIES

A continuum model of a multi-component bio-membrane

Presented by: Professor Shuwang Li, Applied Mathematics Department at IIT

Time: Wednesday, September 9; 3:15 – 4:30 pm

Location: Perlstein Hall Auditorium

Abstract

Membranes considered here are composed of bilayer lipid molecules with hydrophilic heads and hydrophobic hydrocarbon chains. In an aqueous environment, biomembranes form encapsulating bag-like shapes, called vesicles to reduce the energy of the hydrophobic edges. In this talk, we develop a mathematical model to describe the dynamics of a membrane, in particular, the nonlinear coupling among flow, membrane morphology and the evolution of the surface phases. We will also discuss the associated numerical methods and some preliminary results.