

ABSTRACT

"Energetic Variational Approaches for Active and Reactive Fluids"

Chun Liu

Active/reactive fluids convert and transduce energy from their surrounding into a motion and other mechanical activities. These systems are usually out of mechanical or even thermodynamic equilibrium.

One can find such examples in almost all biological systems. In this talk I will develop a general theory for active fluids which convert chemical energy into various types of mechanical energy and laws of thermodynamics. This is the extension of the classical energetic variational approaches for mechanical systems and nonequilibrium thermodynamics. In this talk I will focus on the applications to the phase field models.

This is a joint work with Yiwei Wang.