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Chun Liu* (cliu124@iit.edu). *Energetic Variational Approaches for Active/Reactive Fluids and Applications.*

Active and reactive fluids consist of those materials that consume or convert energy to generate motion and deformations. They are involved in many biological activities. In this talk, we will present a general framework for modeling active and reactive fluids. This is the extension of the classical energetic variational approaches for isothermal mechanical systems. The methods will cover a wide range of chemical reaction kinetics, thermal, and mechanical processes. Several applications, in particular, the modeling of wormlike micellar solutions, under this approach will be discussed. This is a joint project with many collaborators, in particular, Bob Eisenberg, Yiwei Wang, and Tengfei Zhang. (Received January 24, 2022)