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Hengrong Du* (hengrongdu@gmail.com). *Suitable weak solutions of the Ericksen–Leslie system for nematic liquid crystal flows.*

In this talk, we will discuss the Ericksen–Leslie system modeling the hydrodynamics of nematic liquid crystals. It is a strongly coupled PDE system between incompressible Navier–Stokes equations for the underlying fluid velocity field and gradient-flow-like equations for the director field describing the averaged alignment of liquid crystal molecules. In dimension three, we establish both the existence and partial regularity of suitable weak solutions to the Ericksen–Leslie system with the Ginzburg–Landau approximation. This is joint work with Changyou Wang (Purdue). (Received August 18, 2021)