



復旦大學  
FUDAN UNIVERSITY

Applied Math  
Ph.D. Seminar

## Convergence analysis of a fully discrete energy-stable numerical scheme for the Q-tensor flow of liquid crystals

**Speaker:** Yukun Yue (Carnegie Mellon University)

**Time:** 2021-03-18, 16:10 to 17:00

**Location:** Rm 1801, Guanghai East Tower

**Advisor:** Franziska Weber (Carnegie Mellon University)

**Abstract:** We present a fully discrete convergent finite difference scheme for the Q-tensor flow of liquid crystals based on the energy-stable semi-discrete scheme by Zhao, Yang, Gong, and Wang (Comput. Methods Appl. Mech. Engrg. 2017). We prove stability properties of the scheme and show convergence to weak solutions of the Q-tensor flow equations. We demonstrate the performance of the scheme in numerical simulations.