Math Colloquium

Modeling of Fabric Surface Through Front Tracking with Application to Parachute Inflation

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Thursday

March 19th
4:30pm - 5:30pm

LeConte 412
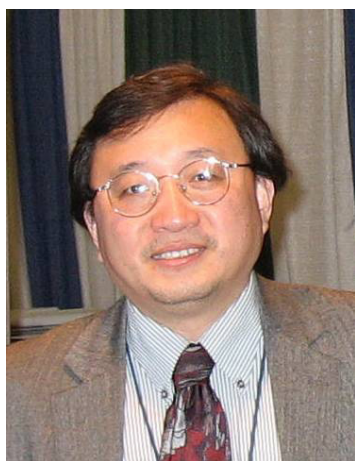
In this talk, I will introduce a mesoscale dual-stress spring-mass model based on Rayleigh-Ritz analysis to mimic the fabric surface as an elastic membrane using the front tracking data and function structures. Our model is coupled with both incompressible and compressible fluid solvers through the immersed boundary and impulse method. We apply this method to the simulation of parachute inflation. I will discuss both the numerical and physical aspects of this project, including numerical stability, verification and validation study, porosity modeling, and coupling with turbulent flow in the simulation.

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