

# ACMS Applied Math Seminar

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Nankai University and University of  
Massachusetts, Dartmouth

Tue, Jan 27

127 Hayes-Healy

4:00 PM



## **A simple finite element method simulating the incompressible high Reynolds number flow and boundary layer separation**

In this talk, we apply a simple finite element numerical scheme, to perform a high-resolution numerical simulation of incompressible flow over a triangular domain and analyze its boundary layer separation. Compared with many classical finite element fluid solvers, this numerical method avoids a Stokes solver, and only two Poisson-like equations need to be solved at each time step/stage. Numerical experiments over triangular domain for high Reynolds number  $Re=10^4, 10^5$  flows are investigated. At same time, the dynamical mechanism of the boundary layer separation, including the bifurcation location and critical time are qualitatively reported in this talk.

The Department of Applied and Computational  
Mathematics and Statistics

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