

TEMPLE UNIVERSITY  
Department of Mathematics

# Applied Mathematics and Scientific Computing Seminar

Wednesday, 15 November 2017, 4:00 p.m.  
Room 617 Wachman Hall

(refreshments and social at 3:45 p.m)

## Interface Transport Scheme of a Two-Phase Flow by the Method of Characteristics - Problem of Mold Filling

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**Abstract.** In this talk we study an interface transport scheme of a two-phase flow of an incompressible viscous immiscible fluid. The problem is discretized by the method of characteristics in time and finite elements method in space. The interface is captured by the Level-Set function. Appropriate boundary conditions for the problem of mold filling are investigated, a new natural boundary condition under pressure effect for the transport equation is proposed and an algorithm for computing the solution is presented. Finally, numerical experiments show and validate the effectiveness of the proposed scheme.