

DISSERTATION
DEFENSE

*Analysis and Simulation of Bingham fluid problems with
Papanastasiou-like regularizations: Primal and Dual
formulations*

Anastasia Svishcheva
Emory University

Abstract: Today I will talk about Analysis and Simulation of Bingham fluid problems with Papanastasiou-like regularizations. I discuss the mixed formulation of Bingham-Papanastasiou problem, its well-posedness and show the numerical results. In general, common solvers for the regularized problem experience a performance degradation when the regularization parameter m gets greater. The mixed formulation enhanced numerical properties of the algorithm by introduction of an auxiliary tensor variable.

I also introduce a new regularization for the Bingham equations, so called Corrected regularization. Corrected regularization demonstrates better accuracy than other ones. I show its well-posedness, and in addition, compare its numerical results with the results obtained with the applications of other regularizations.

Tuesday, November 11, 2014, 4:00 pm
Mathematics and Science Center: W301

Advisor: Alessandro Veneziani

MATHEMATICS AND COMPUTER SCIENCE
EMORY UNIVERSITY