

NUMERICAL ANALYSIS AND SCIENTIFIC COMPUTING
SEMINAR

Computing free surface flows of viscoplastic fluids

Maxim Olshanskii
University of Houston

Abstract: Free surfaces flows of yield stress fluids are common in nature and in engineering applications. Viscoplastic models, such as the Herschel-Bulkley model, are often used to describe the complex rheology of such fluids and predict fluids dynamics with reasonable accuracy. The numerical modeling and analysis of the phenomena is a challenging task due to the non-trivial coupling of complex fluid dynamics and free surface evolution.

In this talk we discuss an approach for numerical simulation of free surface flows of viscoplastic incompressible fluids. The approach features adaptive Cartesian grids and a splitting technique for numerical time integration. We shall point to several open problems in the mathematical and numerical analysis of equations governing free surface flows of viscoplastic fluids.

Friday, September 26, 2014, 12:00 pm
Mathematics and Science Center: W301

MATHEMATICS AND COMPUTER SCIENCE
EMORY UNIVERSITY