

Department of Mathematics

University of Houston

Scientific Computing Seminar

Prof. Jacques Rappaz

Chair of Numerical Analysis and Simulation

EPFL, Lausanne, Switzerland

Finite Element Approximation of a Nonlinear Stationary Stokes Problem Arising in Glaciology

Thursday, Feb. 7, 2013

3:00 PM- 4:00 PM

Room 646 PGH

Abstract: The aim of this talk is to present a nonlinear stationary Stokes problem that describes the ice velocity and pressure fields of grounded glaciers under Glen's flow law. Using convex analysis arguments, we prove the existence and the uniqueness of a weak solution. A finite element method is applied with approximation spaces that satisfy the inf-sup condition, and a priori error estimates are established by using a quasi norm technique. This Stokes problem is coupled to a transport equation for describing the motion of the glacier surface and some numerical simulations will be exhibited.

This seminar is easily accessible to persons with disabilities. For more information or for assistance, please contact the Mathematics Department at 743-3500.