DIFFERENTIAL GEOMETRY/PDE SEMINAR

Wednesday, February 19, 2014
Padelford C-36
3:50PM–5PM

Shape optimization for Navier-Stokes boundary and a dimensional splitting method

Kaitai LI

(Xi'an Jiaotong U., China)

The Drag Functional (Hydrodynamical force acting on the bounadry) is chosen as an objective functional for shape optimization of Navier-Stokes boundary. Since conjugate gradient methods to compute optimization must do numerical differential for 3D stress tensor and Gateaux derivative of solutions of Navier-Stokes equation with respect to the shape of boundary.

Our contributions are that all computation for conjugate gradient method for this kind of optimization do not need numerical differentiation for stress tensor and Gateaux derivative of solutions of Navier-Stokes equation with respect to the shape of boundary. It is only to solve two dimensional boundary layer equations I,III,IV ..