



Spring 2009 Seminar Series



Dr. Jean-Luc Guermond

Professor
Department of Mathematics
Texas A&M University

Friday, January 30, 2009

Time: 3:00 PM - 4:00 PM

Room: MS 2.02.52

Construction techniques for suitable weak solutions for the 3D incompressible Navier-Stokes equations

Abstract: In the talk, I recall basic facts about suitable weak solutions of the 3D incompressible Navier-Stokes equations and I review techniques for constructing those solutions. The main trick essentially consists of mollifying the nonlinearity and passing to the limit by removing the mollification. The question discussed in the talk is how much mollification is required, if any at all (how low can we go)? I'll show that constructing finite-dimensional approximations using the Galerkin technique does the job in some cases. This shows that, if the discrete setting is well-chosen, the Galerkin discretization induces enough mollification to pass to the limit without tweaking the nonlinearity.

A reception will follow the talk and will be held in MS 2.02.52