

1030-35-334

**Matthew Wright\*** ([wrightm@math.missouri.edu](mailto:wrightm@math.missouri.edu)). *Mixed Boundary Value Problems for the Stokes System.*

This talk will focus on proving the well-posedness of the mixed boundary value problem for the Stokes system in a class of Lipschitz domains in  $\mathbb{R}^n$ ,  $n \geq 3$ . Using the method of layer potentials, we first reduce the problem to solving a boundary integral equation. Since we lack a boundary Korn inequality for solutions of the Stokes system, we are forced to derive a new Rellich-type estimate in order to show that the boundary integral operator is semi-Fredholm. Using recent results by Russell Brown and Irina Mitrea concerning the mixed boundary value problem for the Lamé system, we are then able to utilize a deformation argument to conclude that the operator in question is an isomorphism. (Received August 06, 2007)