

Colloquium

University of Texas at Arlington- Mathematics Department
Proudly presents

DR. RICARDO CORTEZ

PENDERGRAFT WILLIAM LARKIN DUREN PROFESSOR
Department of Mathematics
Tulane University

Friday, October 23, 2009
3:00pm
304 Pickard Hall

"Introduction to Regularization Methods for Biological Fluid Flow Problems"

Abstract:

Biological flows, such as those surrounding swimming microorganisms or beating cilia, can be properly modeled using the Stokes equations for fluid motion with external forcing. The organism surfaces can be viewed as flexible interfaces imparting force or torque on the fluid. I will present the Method of Regularized Stokeslets and some extensions of it that are used to compute Stokes flows interacting with immersed flexible bodies or moving through obstacles. The method is based on expressions for the exact fluid velocity field resulting from localized forces supported in small spheres, rather than point-forces. I will present the idea of the method, some of the known results and several examples from biological applications.

Refreshments served before the talk and socializing will follow after
<http://www.uta.edu/math/pages/main/seminar.htm>