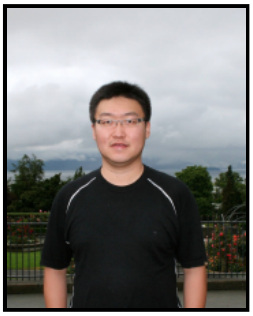

Computational Mathematics Seminar Series

HDG Methods for the Vorticity-Velocity-Pressure Formulation of the Stokes Problem

Jintao Cui, University of Minnesota

Postdoc, Institute for Mathematics and its Applications (IMA)

Johnston Hall 338
November 01, 2011 - 03:30 pm

Abstract:
In this talk we discuss the hybridizable discontinuous Galerkin (HDG) method for solving the vorticity-velocity-pressure formulation of the three-dimensional Stokes equations of incompressible fluid flow. The idea of the a priori error analysis consists in estimating a projection of the errors that is tailored to the very structure of the numerical traces of the method. We show that the approximated vorticity and pressure, which are polynomials of degree k, converge with order k + 1/2 in L2-norm for any k > 0. Moreover, the approximated velocity converges with order k + 1. This is joint work with Bernardo Cockburn from University of Minnesota.

Speaker's Bio:
Jintao Cui earned his Ph.D. in Mathematics in 2010 from Louisiana State University. He is currently a postdoc at the Institute for Mathematics and its Applications (IMA) at the University of Minnesota. His current research interests are finite element methods for Maxwell's equations and fluid-structure interaction problems, multigrid methods on graded meshes and hybridizable discontinuous Galerkin methods.

Refreshments will be served.
This lecture has a reception.

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