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Bernardo Cockburn and **Jintao Cui*** (jcui@ima.umn.edu), 114 Lind Hall, 207 Church St. SE, Minneapolis, MN 55455. *HDG Methods for the Vorticity-Velocity-Pressure Formulation of the Stokes Problem.*

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 L^2 -norm for any $k \geq 0$. Moreover, the approximated velocity converges with order $k + 1$. (Received September 06, 2011)