1046-35-815 **Jintao Cui*** (`cui@math.lsu.edu`), Department of Mathematics, Louisiana State University, Baton Rouge, LA 70803. *Multigrid Solvers for a Class of Discontinuous Galerkin Methods on Graded Meshes.*

In this talk we discuss multigrid solvers for systems resulting from the discretization of second order elliptic boundary value problems by a class of stable and consistent discontinuous Galerkin (DG) methods on graded meshes. Quasi-optimal error estimates in both the energy norm and the L_2 norm for this class of DG methods are derived and uniform convergence of the W-cycle multigrid algorithm for the resulting discrete problem is proved. We will present both theoretical and numerical results. This is joint work with Susanne C. Brenner, Thirupathi Gudi and Li-yeng Sung. (Received September 14, 2008)