

Meeting: 1003, Atlanta, Georgia, SIAMMINI 2, SIAM Minisymposium on Discontinuous Galerkin Methods: Theory and Applications

1003-65-336 **Johnny Guzman*** (jguzman@cam.cornell.edu), Cornell University, 657 Rhodes Hall, Ithaca, NY 14853. *Discontinuous Galerkin Methods for Singularly Perturbed Problems*. Preliminary report. We analyze existing Discontinuous Galerkin (DG) methods for the singularly perturbed problems. More specifically, we consider the classical DG discretization for the convection part and the Interior Penalty or Non-Symmetric Interior Penalty discretization for the elliptic part. We prove that these methods do as well as the Streamline Diffusion method in resolving layers. (Received September 10, 2004)