1078-35-317 **Anna L Mazzucato*** (`alm24@psu.edu`). *Boundary layer analysis for certain 3D nonlinear flows.* We prove optimal convergence rates in viscosity of Navier-Stokes solutions to Euler solutions for certain classes of 3D non-linear channel and pipe flows using effective equations for flow correctors. This is joint work with Daozhi Han, Dongjuan Niu, and Xiaoming Wang. (Received December 12, 2011)