1038-35-141 **Anna L Mazzucato***, Mathematics Department, Penn State University, University Park, PA 16801, and **Michael E Taylor**. *Vanishing viscosity limit for flow in a channel and related singular perturbation problems.*

We consider the vanishing viscosity limit for 3D plane parallel channel flows. In particular, we consider the case of a flow sheared by moving walls. We establish convergence of the Navier-Stokes solution to the corresponding Euler solution as viscosity vanishes in various norms. In the process we obtain a detailed analysis of the small-diffusion limit for a heat equation with lower-order terms on bounded domains, using a parametrix construction. (Received February 05, 2008)