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Ting-Hao Hsu* (hsu.296@osu.edu), Department of Mathematics, The Ohio State University, Columbus, OH 43210. *Viscous singular shock profiles for some systems of conservation laws.*

We consider the viscous regularization $u_t + f(u)_x = \epsilon tu_{xx}$ for systems of conservation laws. One of our examples is a model for incompressible two-phase flow in one space dimension, for which we prove existence of viscous profiles for singular shocks, which by definition are distributions containing delta measures that are weak limits of approximate solutions. The main tool in this study is the geometric singular perturbation theory for singularly perturbed equations. Another example is the so-called Keyfitz-Kranzer model, for which the existence of viscous profiles for singular shocks has been proved by Schecter in 2004. In this talk we improve that result by describing the convergence and growth rates of the unbounded family of solutions. (Received February 23, 2015)