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Gunilla Kreiss* (gunilla.kreiss@it.uu.se), Dept. Information Technology, Uppsala University, Box 337, S-75105 Uppsala, Sweden. *Stability of Shocks on Bounded Intervals*.

Consider the Cauchy problem for a system of viscous conservation laws, with a solution consisting of a viscous shock layer connecting two smooth regions. We expect the time dependent behavior of such a solution to involve two processes. One process consists of the large-scale evolution of the solution. This process is well modeled by the corresponding inviscid system. The second process, which is much faster than the first, is the adjustment in shape and position of the shock layer to the large-scale solution. During this process the end states are essentially constant.

In order to analyze stability we separate the two processes. To isolate the fast process we consider the region close to the shock layer. The equations are augmented with special boundary conditions, which reflect the slow change of the end states. For this problem we show that perturbations decay exponentially fast. (Received August 21, 2007)