962-35-764 **Barbara L Keyfitz*** (keyfitz@uh.edu), Department of Mathematics, University of Houston, Houston, TX 77204-3476. *Conservation Laws without Hyperbolicity: the Dynamics of Singular Shocks.* Preliminary report.

Many models for multi-fluid flow lead to nonhyperbolic equations: in one-dimensional flow of an incompressible two-phase fluid, the characteristics have nonzero imaginary part at any mixed state. This catastrophic linear instability has caused distrust of the model equations. However, the nonlinear equations behave differently: nonlinear conservation law theory predicts stable shock transitions. The shocks in the incompressible model are an unusual type: singular shocks, which can be regularized via the usual dynamical and asymptotic arguments. This talk will show how singular shocks can be used to solve a simple model. (Received September 25, 2000)