1030-35-22   **Theocharis Baxevanis**, **Thodoros Katsaounis** and **Athanasios E. Tzavaras***
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MD 20742. *On the formation of adiabatic shear bands.*

We consider a system of hyperbolic-parabolic equations describing the material instability mechanism associated to the formation of shear bands at high strain-rates. We derive a quantitative criterion for the onset of instability: Using ideas from the theory of relaxation systems we derive equations that describe the effective behavior of the system. The effective equation turns out to be a forward-backward parabolic equation regularized by fourth order term. (Received June 15, 2007)