

Abstract Submitted  
for the SHOCK11 Meeting of  
The American Physical Society

**Equilibrium Conditions at a Solid-Solid Interface** JEEYEON

PLOHR, Los Alamos National Laboratory — We derive the thermodynamic conditions necessary for two elasto-plastic solid phases to coexist in equilibrium. Beyond temperature, velocity, and traction continuity, these conditions require continuity of a generalization of the specific Gibbs free energy. We express this quantity in the Eulerian frame, as well as the Lagrangian frame. We also discuss two possible interpretations for the Gibbs free energy, which lead to distinct generalizations, except in the case of inviscid fluids, where they coincide.

JeeYeon Plohr  
Los Alamos National Laboratory

Date submitted: 18 Feb 2011

Electronic form version 1.4