Non-Equilibrium Thermodynamics of Reactive Systems\textsuperscript{1} JOSEPH POWERS, SAMUEL PAOLUCCI, University of Notre Dame — Construction of the Slow Invariant Manifold (SIM) for a reactive system is coming to be realized as the linchpin in a rational method of reduced kinetics. Here a method of constructing a finite dimensional SIM based on identifying critical points and connecting them with trajectories is shown for a spatially homogeneous reactive system. The relation between this analysis and classical as well as irreversible thermodynamics is examined. Extensions to reactive flow systems are considered.

\textsuperscript{1}National Science Foundation

Joseph Powers
University of Notre Dame

Date submitted: 04 Aug 2007

Electronic form version 1.4