AME 60636
Prof. J. M. Powers
Homework 9
Due: Wednesday, 4 April 2012

Consider the kinetics model for hydrogen-air detonation as presented by Powers and Paolucci[1] You will find the analysis presented in this paper useful for the present homework.

1. For a mixture at rest in a laboratory frame of $2H_2 + O_2 + 3.76N_2$ and a pressure of $101.325 \ kPa$ and a temperature of $298 \ K$, find the thermodynamic state after the passage of a shock wave at velocity $1200 \ m/s$.

[1]Powers and Paolucci, 2005, "Accurate Spatial Resolution Estimates for Reactive Supersonic Flow with Detailed Chemistry," *AIAA Journal*, 43(5): 1088-1099.