

AME 598t  
Prof. J. M. Powers  
Homework 9  
Due: Thursday, 14 April 2005

Consider the kinetics model for ozone decomposition discussed in previous homeworks.

1. Write the governing equations for ozone under the assumptions that it is inviscid, one-dimensional, calorically perfect, ideal, and compressible. Write the equations in conservative, non-conservative, and characteristic form.
2. For a mixture at rest in a laboratory frame of  $O$ ,  $O_2$  and  $O_3$  which have identical initial mass fractions and a pressure of  $100 \text{ kPa}$  and a temperature of  $300 \text{ K}$ , find the thermodynamic state after the passage of a shock wave at velocity  $1000 \text{ m/s}$ .