

Abstract Submitted  
for the DFD19 Meeting of  
The American Physical Society

**Shock-wave structure according to the Navier–Stokes–Fourier constitutive relations** FRANCISCO J. URIBE, ROSA M. VELASCO, Universidad Autonoma Metropolitana — The Navier–Stokes–Fourier constitutive equations are used to study plane shock–waves in dilute gases. We use the soft sphere model in which the viscosity and thermal conductivity are proportional to a power of the local temperature:  $\eta, \kappa \sim T^\sigma$ ,  $\sigma$  being the viscosity index. We show that the experimental normalized density profiles for argon can be fit with the viscosity index. Results from the direct simulation Monte Carlo method and with transport coefficients obtained from ab initio potentials are also considered.

Francisco J. Uribe  
Universidad Autonoma Metropolitana

Date submitted: 30 Jul 2019

Electronic form version 1.4