

Abstract Submitted
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Thermal and electrical conductivity and temperature relaxation for dense plasma using a multi-species BGK model CORY HAUCK, Oak Ridge National Laboratory, JEFFREY HAACK, Los Alamos National Laboratory, MICHAEL MURILLO, Michigan State University — We derive thermal and electrical conductivity transport coefficients using a new multi-species multi-temperature BGK model. This model conserves mass, momentum, and kinetic energy and allows for a more clear connection to the underlying cross sections and inter-species collision rates. We use the molecular dynamics validated dense plasma effective potential model of Stanton and Murillo and numerically generated QM cross sections as inputs for these collision rates and compare with the results of Lee and More as well as of electron-hydrogen temperature relaxation and electron-ion relaxation in an ionized SF_6 mixture.

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