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**Multiple Scattering Effects inWarm and Hot Dense Matter** CHARLES STARRETT, Los Alamos National Laboratory — Warm and Hot dense matter occurs in the interiors of giant planets and stars, as well as in inertial fusion experiments. It is matter that has been heated to tens of thousands or millions of Kelvin, and with a density similar to solid density. Due to a multitude of complicated and completing strong physics effects, like partial ionization, strong ion-ion coupling, and quantum mechanical electrons, warm and hot dense matter is very challenging to model. Here we investigate the role of multiple scattering, where electronic states are strongly influenced by the neighbouring atoms (i.e. electrons scatter multiple times and dont become asymptotically free). To do this we have developed the multiple scattering Greens function method for high temperatures. This method has favorable scaling properties at high temperatures and includes all the physics mentioned above. This presentation will demonstrate these scaling properties and give initial, promising results.

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