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Investigation of thermal conductivity of materials for inertial confinement fusion applications TILAK DHAKAL, BRIAN HAINES, Los Alamos National Laboratory — Numerous inertial confinement fusion (ICF) capsule implosion experiments use different materials and their mixtures. To numerically simulate such experiments, one requires many plasma parameters beforehand for a wide range of temperatures and densities. Thermal conductivity is one of them, which determines the heat transport in plasma so that it plays a key role in the growth of hydrodynamic instabilities during the capsule implosion process. Analytic models such as, Spitzer model and Lee-More model have been extensively used to calculate thermal conductivity. But these models are usually not valid especially for warm dense plasma regime. Tabular EOS data, such as SESAME tables, are not available for all materials. In this talk, we investigate different analytic models, first principle calculation, tabular data to calculate thermal conductivity for most commonly used materials and their mixtures in ICF experiments such as Polystyrene (CH) and Deuterium-Tritium (DT).

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