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Reflectivity of CHOGe along the principal Hugoniot VANINA RECOULES, GAEL HUSER, PIERRE COLIN-LALU, CEA/DAM-DIF, Arpajon, France — One possible solution for the ablator of the ICF capsule is to use plastic(CH) doped with a mid-Z element such as Ge. Knowledge of the EOS and opacity of this material is then critical for target design. We have performed calculation of the equation of states (EOS) and the reflectivity along the principal Hugoniot up to 8 Mbar for two highly doped (2% and 13%) CHOGe mixture. We have used DFT-QMD simulation coupled with Kubo-Greenwood formulation for the optical properties. A special attention was paid on the PAW dataset design for the high pressure cases and on the Ge description. These calculations are compared to the experiment performed at Gekko XII on laser-shocked CHOGe where EOS data and optical properties were obtained in the same regime. On one hand, this study allow us to explore the mixing rule used for the EOS calculation in hydrodynamics simulation. On the other hand, this shows the capability of the description of the electronic structure modification along the metal to non-metal transition using QMD simulations.

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