Abstract Submitted
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Multiphase equations of state for magnesium oxide, silicon dioxide, and forsterite TRAVIS SJOSTROM, Los Alamos National Laboratory — We detail new extended range multiphase equations of state for MgO, SiO_2, and Mg_2SiO_4. Particular attention is paid to the warm dense liquid regime where we have performed density functional theory (DFT) based quantum molecular dynamics for densities up to 3 times ambient density and temperatures up to 100 eV. Additionally we make use of DFT results to constrain the EOS for thermally excited solids phases and the melt curve. Significant comparisons are made with experimental data and distinction is made between the accuracies of the simulation and experimental data.

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