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Simulations of pressure-induced phase transitions at the continuum scale DANIEL ORLIKOWSKI, LLNL, ROGER MINICH, JEFF H. NGUYEN, NEIL C. HOLMES, LLNL COLLABORATION — To describe pressure-induced phase transitions, we have a developed continuum model and have performed hydrodynamic simulations that are compared to recent ramped-compression experiments in water. The model incorporates modern nucleation theory through scaled quantities for nucleation and growth. The form of the phase fraction order parameter requires a self-consistent iteration per hydrodynamic time step. We focus our simulations on recent ramp-compression experiments of liquid water, where the system undergoes a pressure-induced phase transition into ice VII, however, other systems will be shown. Also, a comparison with other common continuum models will be presented.

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