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Path Integral Simulations of Hydrogen Melting at High Pressures
REBEKAH GRAHAM, UC Santa Barbara, BURKHARD MILITZER, Carnegie Institution of Washington — The melting line of hydrogen at high pressure and low temperature is studied using computer simulations. Using path integral Monte Carlo we focus on the regime where the protons form a Wigner crystal. The Lindemann ratios, structure factors, and pair correlation functions are used to characterize melting due to increases in both pressure and temperature. The effects of electron screening on the stability of the crystal are investigated by comparing results from Coulomb and Yukawa simulations.

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