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A new wide-range equation of state for tungsten JOHN H. CARPENTER, Sandia National Laboratories, MICHAEL P. DESJARLAIS, ANN E. MATTSSON, KYLE R. COCHRANE — A new wide-range equation of state for tungsten is described. Quantum molecular dynamics calculations in the warm dense matter region are combined with other experimental and theoretical calculations, providing a set of information on which to tune a model of the free energy landscape. The resulting model, describing the liquid, gas, and bcc solid phases, provides a good description of the liquid-vapor critical point, melt curve, static compression data, isobaric expansion data, and the Hugoniot. Finally, improvements in table generation greatly improve the resolution of phase boundaries.

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