

Critical Dynamics of Dimethyl Ether with Hamiltonian Equations of Motion

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Critical dynamics of Dimethyl Ether for three dimensional cubic boxes are investigated with Hamiltonian Equations of motion. Thermodynamic properties derived from microcanonical simulations are found to be in good agreement with experimental values in the explored temperature region. The behavior of the density and energy as a function of temperature is thoroughly investigated below and above the critical region, taking in to account finite size effects. Hamiltonian dynamics of Dimethyl Ether lead to a second order phase transition with critical temperature $T_c \approx 400.5$ K and critical density $\rho_c \approx 275 \text{ Kg. m}^{-3}$.