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Temperature-dependent study of Bose gases : Crossover from three- to one-dimensional behavior[1] KWANGSIK NHO, Center for Simulational Physics, University of Georgia, DOERTE BLUME, Department of Physics, Washington State University — Using the finite-temperature path integral Monte Carlo method, we investigate the crossover of Bose gases from three- to one-dimensional behavior by incresing the trap anisotropy. The interaction between particles is modeled by hardcore potential with s-wave scattering length a_{sc}. Specifically, we monitor the energetics, the superfluid fraction, and structural properties as a function of temperature T, scattering length a_{sc}, and the trap anisotropy parameter.

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