

Thermodynamic Cycles Near a Phase Transition for Bose-Einstein Condensates

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Thermodynamic cycles for quantum fluids are not yet consolidated. In this work, a theoretical and empirical framework is presented for fundamental variables such as harmonic pressure and harmonic volume to generate thermodynamic cycles. Harmonic quantities can be converted into conventional quantities. The efficiency of a cycle is also obtained through heat and work.

Keywords: Bose-Einstein condensate. Thermodynamic cycles. Quantum phase transition.