Critical Behavior of a Bose Gas

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Starting from basic features of second-order phase transitions, I will concentrate in this lecture on the normal to superfluid phase transition of a Bose-Einstein condensate. I will use this example to discuss the concepts of criticality and universality. Finally, I will present experimental approaches to study the critical behavior of Bose gases and to measure critical exponents of this phase transition [1].

[1] T. Donner, S. Ritter, T. Bourdel, A. Öttl, M. Köhl, and T. Esslinger: *Critical Behavior of a Trapped Interacting Bose Gas*, Science **315**, 1556 (2007).