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Critical temperature of a tunable trapped Bose gas ROBERT SMITH, NAAMAN TAMMUZ, ROBERT CAMPBELL, SCOTT BEATTIE, STUART MOULDER, ZORAN HADZIBABIC, University of Cambridge, UK — We report on high precision measurements of the critical temperature of a harmonically trapped Bose gas as a function of interaction strength. We use an ultra-cold gas of ^{39}K atoms in which the s-wave scattering length can be tuned via a Feshbach resonance. Our measurements exclude the ideal gas result by more than five standard deviations and allow, for the first time, comparison between different mean-field and beyond- mean-field theories.

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