

Abstract Submitted
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Measurement of quantum depletion in a homogeneous Bose-Einstein condensate RAPHAEL LOPES, CHRISTOPH EIGEN, NIR NAVON, ROBERT SMITH, ZORAN HADZIBABIC, Univ of Cambridge, AMOP TEAM — Using momentum selective Bragg scattering we measure the condensed fraction of a strongly interacting homogeneous BEC. When adiabatically increasing the scattering length, we see that the condensed fraction decreases linearly with $\sqrt{na^3}$ (where n is the density), in excellent agreement with the Bogoliubov theory of quantum depletion. We also show the reversibility of this process by adiabatically reducing the scattering length.

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