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Collapse and three-body loss in a ^{85}Rb Bose-Einstein condensate

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Collapsing Bose-Einstein condensates are rich and complex quantum systems for which quantitative explanation by simple models has proved elusive. We present experimental data on the collapse of high-density ^{85}Rb condensates with attractive interactions and find quantitative agreement with the predictions of the Gross-Pitaevskii equation. The collapse data and measurements of the decay of atoms from our condensates allow us to put new limits on the value of the ^{85}Rb three-body loss coefficient K_3 at small positive and negative scattering lengths.

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