



Andrew Grier
(ENS Paris)

Thermodynamics and Losses of a 3D Bose Gas at Unitarity

Recent experimental results on strongly-interacting Bose gases have raised the question of whether one can measure the equilibrium properties of atomic Bose gases at unitarity in the presence of three-body losses. We will present here a measurement of three-body losses in the vicinity of a broad, closed-channel dominated Fano-Feshbach resonance in ^7Li . We will show that the loss rate in this case reaches the maximal value permitted by quantum mechanics, surprisingly even on the negative-a side of the resonance where no shallow dimers exist. We comment on the implications for producing and measuring a quasi-equilibrated, trapped Bose gas in the presence of these losses.

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**Universität Stuttgart, NWZII, Raum 3.123
Pfaffenwaldring 57, 70569 Stuttgart**

