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Contact Measurements on Atomic BEC[1] PHILIP MAKOTYN, CATHERINE KLAUSS, JILA, ROBERT WILD, None, ERIC CORNELL, DEBORAH JIN, JILA — For ultracold fermions, a powerful set of universal relations, centered on a quantity called the contact, connects the strength of short-range two-body correlations to the thermodynamics of a many-body system with zero-range interactions [1]. An interesting question is whether these ideas and the concept of the contact can be extended to bosons, where issues include the decreasing stability of BECs with increasing repulsive interactions and the possibility of three-body interactions. We present measurements of the contact, using RF spectroscopy, for an ^{85}Rb atomic Bose-Einstein condensate (BEC) near a Feshbach resonance. To connect our measurements of the contact to three-body interactions, we located an Efimov resonance in ^{85}Rb atoms with loss measurements and thus determine the three-body interaction parameter.

[1] S. Tan, Ann. Phys. **323**, 2971 (2008)
[2] E. Braaten, D. Kang, and L. Platter, Phys. Rev. Lett. **106**, 153005 (2011).

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Philip Makotyn
JILA

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