Abstract Submitted
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Few-body phenomena in ultracold cesium: More resonances, more bodies, and less dimensions ALESSANDRO ZENESINI, BO HUANG, MARTIN BERNINGER, STEFAN BESLER, HANS-CHRISTOPH NAEGERL, FRANCESCA FERLAINO, Institut fuer Experimentalphysik and Zentrum fuer Quantenphysik, RUDOLF GRIMM, Institut fuer Experimentalphysik and Zentrum fuer Quantenphysik, Institut fuer Quantenoptik und Quanteninformation — Efimov trimers represent the paradigm of universal few-body physics and they have been subject to manifold investigations [1]. An important quantity, both for theory and experiments, is the so-called three-body parameter, which fixes the positions of the Efimov resonances. Our measurements with ultracold cesium are consistent with a constant three-body parameter, even when different Feshbach resonances are involved for the tuning of the scattering length [2]. Furthermore, the wide tuning range allows us to explore a series of N-body states by observing four- and five-body recombination resonances [3]. In ongoing experiments, we investigate how few-body states behave when a dimensional confinement is applied, from a shallow three-dimensional trap to a quasi two-dimensional situation. Preliminary results show that the position of the Efimov resonance shows a pronounced shift to lower absolute values of the scattering length.

[1] F. Ferlaino et al., Few-Body Syst. 51, 113 (2011)
[2] M. Berninger et al., Phys. Rev. Lett. 107, 120401 (2011)
[3] J. von Stecher, Phys. Rev. Lett. 107, 200402 (2011)

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