Abstract Submitted
for the DAMOP13 Meeting of
The American Physical Society

Three-body recombination in a quasi-two-dimensional quantum gas[1] BO HUANG, ALESSANDRO ZENESINI, MARTIN BERNINGER, HANNS-CHRISTOPH NÄGERL, FRANCESCA FERLAINO, RUDOLF GRIMM, Institut für Experimentalphysik und Zentrum für Quantenphysik, Universität Innsbruck, 6020 Innsbruck, Austria — Collisional properties of interacting particles can dramatically change when the dimensionality of the system is reduced. One intriguing example is the disappearance of the weakly bound trimers known as Efimov states in two dimensions. Many open questions remain about the details of the crossover from three to two dimensions and how the Efimov-related three-body recombination losses are affected. We use ultracold cesium atoms trapped tightly in a harmonic potential along one spatial direction to realize a quasi-two-dimensional system with tunable confinement and tunable interactions. In our latest results, we succeed to trace a smooth transition of the three-body recombination rate from a three-dimensional to a nearly two-dimensional system, in good agreement with recent theoretical models.

[1]Funded by the Austrian Science Fund FWF within project P23106.

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Date submitted: 25 Jan 2013 Electronic form version 1.4