

Abstract Submitted  
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**Atom-molecule conversion at a Feshbach resonance in a dilute gas** JUHA JAVANAINEN, University of Connecticut — We study the efficiency of atom-molecule conversion in a sweep of the magnetic field across a Feshbach resonance in a nondegenerate gas. We first integrate numerically the time dependent Schroedinger equation for a pair of atoms converting into a molecule. The atom-molecule conversion efficiency turns out to have an unexpected scaling property. To find the conversion efficiency in a dilute gas, we then average the two-atom result over all collisions available for a spectator atom, a process made quite simple by the scaling property. In accordance with the experiments [Hodby et al., PRL 94, 120402], the conversion efficiency is proportional to phase space density of the atomic gas. However, not entirely in accordance with the experiments, we find a difference between fermions and bosons.

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