Abstract Submitted
for the DAMOP05 Meeting of
The American Physical Society

Crossover from fermionic to bosonic quantum gases JOCHEN WACHTER, JOHN COOPER, MURRAY HOLLAND, JILA, University of Colorado at Boulder — Correlations between a composite boson and a fermion pair are considered in the context of the crossover theory of fermionic to bosonic superfluidity. It is shown that such correlations are the minimal ingredients needed in a many-body theory to generate the right boson-boson scattering length in the Bose-Einstein limit of the crossover. This is applied to the formation of molecules in the normal phase which can be compared with experimental data in the available alkali systems.

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Date submitted: 01 Feb 2005 Electronic form version 1.4