Abstract Submitted
for the DAMOP05 Meeting of
The American Physical Society

Bose-Fermi Mixtures Near an Interspecies Feshbach Resonance: A Non Equilibrium Analysis DANIELE BORTOLOTTI, JILA, University of Colorado, ALEXANDR AVDEENKOV, Institute of Physics and Power Engineering, Obninsk, Russia, JOHN BOHN, JILA, University of Colorado — We study the non equilibrium behavior of a Bose-Fermi mixture of alkali atoms in the presence of a Feshbach resonance between bosons and fermions. To this end we derive the Hartree-Fock-Bogoliubov (HFB) equations of motion for the interacting system. This approach has proven very successful in the study of resonant systems composed of either Bose or Fermi particles. Inspection of these equations and numerical solution show that this approach is not adequate for a thorough analysis of the system at hand, and that even the simple physics of the system is driven by higher order correlations between components.

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Date submitted: 28 Jan 2005 Electronic form version 1.4