Abstract Submitted
for the DAMOP05 Meeting of
The American Physical Society

Stability of fermionic Feshbach molecules in a Bose-Fermi mixture ALEXANDR AVDEENKOV, Institute of Physics and Power Engineering, Obninsk, Russia, DANIELE BORTOLOTTI, JOHN BOHN, JILA, University of Colorado — In the wake of successful experiments in Fermi condensates, experimental attention is broadening to include to resonant interactions in degenerate Bose-Fermi mixtures. We consider the properties and stability of the fermionic molecules that can be created in such a mixture near a Feshbach resonance (FR). To do this, we consider the two-body scattering problem in the many-body environment, and assess its complex poles. The stability properties of the resulting molecules strongly depend on the center-of-mass motion of a molecule, which has to be taken into account because of its fermionic nature. At low center-of-mass momenta the molecules are more stable than in the absence of the environment (due to Pauli-blocking effects), while at high center-of-mass momenta the molecules are less stable.

John Bohn
JILA, University of Colorado

Date submitted: 02 Feb 2005 Electronic form version 1.4