

Abstract Submitted
for the DAMOP08 Meeting of
The American Physical Society

Characterization of three-body processes near a magnetic field induced Feshbach resonance JOSE P. D'INCAO, JILA, Department of Physics, University of Colorado, BRETT D. ESRY, Department of Physics, Kansas State University, CHRIS H. GREENE, JILA, Department of Physics, University of Colorado — We explore universal and nonuniversal aspects of three-body processes using interatomic interactions that explicitly produce a magnetic field dependent Feshbach resonance. In particular, we studied cases in which the Feshbach resonance has a large background scattering length, characterized by a weakly bound or quasi-bound state in the open channel, and cases where the resonance is unnaturally narrow due to weak coupling between open and closed collision channels. Both types of resonances are currently encountered in experiments with ultracold gases and their influence on the Efimov physics governing three-body processes is largely unexplored. Our results are based on a powerful new technique in which the full hyperfine interaction is included and the three-body scattering processes are described in an intuitive picture in terms of hyperspherical effective potentials. This work was supported by the National Science Foundation and by AFOSR.

Jose P. D'Incao
JILA, Department of Physics, University of Colorado

Date submitted: 01 Feb 2008

Electronic form version 1.4