A Two-Channel R-Matrix Analysis of Magnetic Field Induced Feshbach Resonances PAUL JULIENNE, National Institute of Standards and Technoloy, NICOLAI NYGAARD , Aarhus University, BARRY SCHNEIDER, National Science Foundation — A two channel model of magnetic field induced Feshbach resonances in ultra-low atom-atom collisions is presented. The model uses realistic potentials and is parametrized using available theoretical and experimental data to reproduce the known low-energy scattering properties of the colliding atoms. The coupled equations are solved using the R-Matrix method, expanding the wavefunction in a Finite Element Discrete Variable basis. This basis enables us to capture both the short-range behavior of the molecular vibrational states as well as the long-range scattering states. Results will be presented showing the behavior of the wavefunctions and T- matrices as a function of the external magnetic field for selected alkali atom pairs.

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