Abstract Submitted
for the DAMOP19 Meeting of
The American Physical Society

Radio-frequency spectroscopy of low-dimensional Fermi gases near s-wave and p-wave Feshbach resonances KENNETH JACKSON, SCOTT SMALE, University of Toronto, BEN OLSEN, Yale-NUS College, JOSEPH THYWISSEN, University of Toronto — We investigate the effects of dimensionality and orbital parity on pairing in a degenerate Fermi gas of potassium atoms near a Feshbach resonance. Dimensionality is controlled by loading atoms into one or two optical lattices, to create ensembles of 2D or 1D samples, respectively. At various s-wave or p-wave scattering lengths, we perform radio-frequency spectroscopy, which can associate or dissociate Feshbach dimers, cause bound-to-bound transitions, or reveal the contact. From these spectra, we can measure the energetic widths of resonances, the nature of the pair wave function, and the strength of short-range correlations in the gas. By comparing spectra in different confinement geometries, we test predictions on the interplay between dimensionality and pairing.

Kenneth Jackson
University of Toronto

Date submitted: 01 Feb 2019 Electronic form version 1.4