Abstract Submitted
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Measurement of 3-body losses in a quasi-1D ^{6}Li gas near a p-wave Feshbach resonance[1] YA-TING CHANG, RUWAN SENARATNE, DANYEL CAVAZOS-CAVAZOS, RANDALL G. HULET, Rice University — P-wave interactions are known to lead to intriguing quantum phenomena such as $p+ip$ topological superfluids and Majorana fermions. However, the experimental detection of these phenomena in ultracold atomic gases remains a challenge due to the severe atom losses from three-body recombination collisions near the p-wave Feshbach resonance in a 3D atomic gas. It has been recently predicted[2] that such effects could be suppressed by introducing 1D confinement, thus leading to the formation of p-wave atom pairs. To study the stability of atom pairs, we will measure the three-body loss rate with spin-polarized ^{6}Li atoms in the Zeeman ground state $|f = \frac{1}{2}, m_f = \frac{1}{2}\rangle$. With a two-dimensional compensated optical lattice, we can introduce a quasi-1D confinement. We will report the result of the three-body loss rate measurement in different dimensions.

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[2]Lihong Zhou and Xiaoling Cui, Phys. Rev. A 96, 030701 (2017).

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