Abstract Submitted
for the DAMOP18 Meeting of
The American Physical Society

Single and two photon spectroscopy of ultracold dipolar ^{6}Li-^{40}K molecules ANBANG YANG, SOFIA BOTSI, SUNIL KUMAR, ANBANGKAI DIECKMANN, MARK LAM, ANDREW LAUGHARN, Centre for Quantum Technologies and Dept. of Phys., Natl Univ of Singapore — Ultracold heteronuclear dimers of ^{6}Li-^{40}K, in their deeply-bound ro-vibronic states possess a large electric dipole moment. This makes them a suitable candidate for investigating long-range anisotropic dipole-dipole interactions. Starting from a sympathetically-cooled, quantum-degenerate mixture of ^{6}Li and ^{40}K, we create weakly-bound ^{6}Li-^{40}K molecules via a magnetic-Feshbach association with a sole singlet admixture. High-resolution laser spectroscopy of the electronically-excited $B^1\Pi$ and $A^1\Sigma$ potentials of ^{6}Li-^{40}K Feshbach molecules is performed to identify intermediate vibrational states suitable for coherent Raman transfer to the electronic ground state. Subsequently, Autler-Townes spectroscopy is performed to investigate the deeply-bound ro-vibrational levels of the electronic ground state of ^{6}Li-^{40}K molecules. Results of the single and two-photon molecular spectroscopy are presented in this talk.

Anbang Yang
Centre for Quantum Technologies and Dept. of Phys., Natl Univ of Singapore

Date submitted: 06 Feb 2018 Electronic form version 1.4