

Seminar

The quest for ultracold polar LiRb molecules

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Ultracold heteronuclear bi-alkali molecules have recently attracted enormous attention owing to a large electric dipole moment in their vibronic ground state. The long-range, anisotropic dipole-dipole interaction in such systems is the basis for a variety of applications including quantum computing, precision measurements and ultracold chemistry. Our choice, the LiRb molecule, is motivated by the relatively high dipole moment (4.1 Debye) of the LiRb molecule in its vibronic ground state. In this talk, I shall describe our efforts which eventually led to the production of deeply bound, ground state, ultracold, polar LiRb molecules for the first time. The LiRb molecules were produced by photoassociation (PA) of ultracold Li and Rb atoms and were detected using resonance enhanced multi-photon ionization (REMPI). I will also discuss the measurement of C_6 coefficients for the Li ($2s$) + Rb ($5p$) asymptote, the measurement of PA rates and results on two-photon photoassociation, for the first time, in a heteronuclear bi-alkali molecule.

Thursday, Nov 30th 2017

04:00 PM (Tea/Coffee at 03:30 PM)

Class Room - 3, TIFR-H