

Abstract Submitted
for the DAMOP16 Meeting of
The American Physical Society

Rovibrationally Inelastic Collisions of Ultracold Lithium Dimer

WILLIAM JASMINE, BRIAN STEWART, Wesleyan University — We have calculated cross sections for rovibrationally inelastic collisions of $\text{Li}_2 A (1)^1\Sigma_u^+$ colliding with neon and xenon on *ab initio* potentials. We find that the inelastic cross section can be very large and increasing at low collision velocity. This behavior is very well modeled as a Langevin process. The total inelastic cross section is a sizable fraction of the total capture cross section, typically about a third. For Li_2 - Xe, the total inelastic rate constants are several thousand square angstroms, and level-to-level rate constants are several hundred square angstroms at collision speeds below 1000 cm/s, implying that such collisions might be observable in photoassociated lithium dimer.

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Date submitted: 29 Jan 2016

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