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## 54 - Quantum state dependent chemistry of ultra-cold $6\text{Li}_2$ dimers

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Reactive and inelastic collisions of ultra-cold molecules has generally been observed to follow a universal rate law described by the quantum Langevin model. The salient feature of this law is an independence of the reaction probability from the short-range physics of the interaction. We report on reactive and inelastic collisions of  $6\text{Li}_2$  dimers in several ro-vibrational states of the  $a(13\Sigma^+u)$  potential. While the  $v = 0, 5, 8$  are observed to decay at the universal limit, decay of the  $|v = 9, N = 0\rangle$  state exhibits a deviation from universality, opening up the possibility of using external magnetic fields to tune the reaction rate.

**Author:** FRIELING, Erik (University of British Columbia)

**Co-authors:** UHLAND, Denis (UBC); POLOVY, Gene; Prof. MADISON, Kirk (UBC)

**Presenter:** FRIELING, Erik (University of British Columbia)

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