

Abstract Submitted
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Reactive collisions of ultracold polar molecules¹ CONSTANTINOS MAKRIDES, SVETLANA KOTOCHIGOVA, ALEXANDER PETROV, Department of Physics and Astronomy, Temple University — There has been a recent increase in the number of experimental and theoretical efforts in describing and controlling ultra cold chemistry. A number of groups have been able to create and trap a number of cold molecules and are now looking to move into controlling more exotic molecular systems. Critical to this movement is understanding the various interactions between the atoms and molecules in the trap. We offer here a study of the these interactions using $\text{Li} + \text{LiYb}$ as a test system of interest. Using ab initio calculations we are able to obtain the long range interactions for the current system and connect to the short range interactions to provide a description of the interaction landscape. With this information, chemical reactions such as the exchange reaction ($\text{Li} + \text{LiYb} \rightarrow \text{Yb} + \text{Li}_2$) can be practically approached in scattering calculations.

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