

Abstract Submitted  
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**Ultracold Feshbach molecules: energy structure and scattering length**<sup>1</sup> CHENG CHIN, James Franck Institute and Physics Department, University of Chicago — Recent experiments on ultracold Feshbach molecules have revealed detailed and intriguing molecular energy structure near the continuum. Based on the quantum nature of the molecules, they are generally classified into two types: open-channel dominated and closed channel dominated. A simple picture exists to unify and describe BOTH types of molecules. We report excellent agreements between our results and the full multi-channel calculation over a wide range of molecular binding energies: from 0 (continuum) to  $\sim h \times 1\text{GHz}$ . Comparison to measurements on  $^6\text{Li}$ ,  $^{40}\text{K}$ ,  $^{85}\text{Rb}$ ,  $^{87}\text{Rb}$  and  $^{133}\text{Cs}$  will be presented. In particular, we will address the issue of associating molecular binding energies and atomic scattering lengths and the case of  $^{133}\text{Cs}$  where multiple s-, d- and g-wave resonances overlap.

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Cheng Chin  
James Franck Institute and Physics Department, University of Chicago

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