

Abstract Submitted  
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**Ultracold Molecules Created near the continuum: Energy Structure and Efimov Physics** CHENG CHIN, The University of Chicago — We present a two-channel model to describe weakly bound states of atoms near Feshbach resonances. This model provides a simple and accurate picture for the molecular energy structure and the bound state wave functions. We show that the results agree excellently with the measurements and the full multi-channel calculations. Several important issues will be addressed: first of all, we will discuss the strong and surprising dependence of Feshbach bound states on the background scattering properties. In the threshold regime, however, the bound state has a universal behavior and we will discuss the “broadness” of a resonance in the context of two-body physics and many-body physics. Finally, we will discuss trimer and tetramer energy structure in the vicinity of a Feshbach resonance and their connection to Efimov physics.

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