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Ultracold three-boson systems near a Feshbach resonance: the role of large effective ranges¹ YUJUN WANG, Dept. of physics, Kansas State University, J.P. D'INCAO, JILA, University of Colorado, Boulder, CO 80309, B.D. ESRY, Dept. of Physics, Kansas State University — We have studied the behavior of ultracold three-boson systems as the effective range is varied from being much smaller than the scattering length to being much larger. Such variations in the effective range allow us to more realistically model the behavior near a Feshbach resonance [Petrov,Jonsell]. We use model two-body interactions and the adiabatic hyperspherical representation to produce effective three-body potentials from which we try to extract universal behavior. The degree to which these three-body systems behave universally will be discussed. To facilitate this, comparisons will be made with the predictions from zero range potential models. Preliminary numerical calculations suggest that such models may be insufficient, but a more complete analysis will be presented.

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Prefer Oral Session
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