Abstract Submitted
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The Efimov effect with finite range interactions[1] LUCAS PLATTER, Univ of Tennessee, Knoxville — Systems of strongly interacting atoms are receiving a lot of attention because of their interesting features in the few- and many-body sector. Strong interactions are frequently obtained in experiment by using a Feshbach resonance to tune the scattering to large values. A striking feature of three-body systems with a large scattering is the emergence of a discrete scaling symmetry that is also known as the Efimov effect. The Efimov effect has been observed through the measurement of loss rates in experiments with ultracold atoms. It is, however, also relevant to nuclear physics where the three-nucleon bound state and some halo nuclei are considered to be examples of Efimov states. Such systems can be modeled conveniently with the zero-range limit, however, in many of such experiments the finite range of the interaction leads to significant corrections that need to be taken into account. I will discuss how a finite effective range can be included in calculations for three-body systems that display the Efimov effect and how this leads to novel universal relations. Applications to experiments with homonuclear and heteronuclear ultracold atomic gases are discussed.

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