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A Unified View of Finite Range Effects in Efimov Trimers LUCAS PLATTER, University of Tennessee, CHEN JI, TRIUMF, ERIC BRAATEN, Ohio State University, DANIEL PHILLIPS, Ohio University — Three-body recombination in ultracold atoms is a process that can demonstrate the appearance of discrete scale invariance due to the Efimov effect. Different features in the scattering length dependent recombination rate are related by universal relations in the so-called zero-range limit. However, experiments are usually carried out with systems that display non-negligible corrections due to the finite range of interatomic interaction. We explain the origin of recently constructed universal relations for systems of three identical bosons interacting through a large scattering length [1]. Range corrected universal relations are calculated using first order perturbation theory and are benchmarked against microscopic calculations that by construction contain finite range effects [2-4]. We relate our results to work done in other frameworks and explain differences and similarities. We present also relations that are crucial for analyzing experiments in the future.

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