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Beyond the Efimov effect

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Few-body physics has seen a few rather dramatic experimental realizations of long-predicted Efimov physics in the last five years. These successes have come thanks to the unprecedented control that ultracold atomic gases afford for few-body systems. I will describe a new class of few-body states that might also be observable in ultracold systems. These states occur not for short-range two-body potentials, but rather for long-range $1/r^2$ potentials. Consequently, no scattering length can be defined in the usual sense, making the problem distinct from the Efimov scenario. Like the Efimov effect, however, an infinity of three-body bound states is possible even when there are no bound two-body states. I will discuss this point and our exploration of these novel states.

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