

Efimov and Non-Efimov Three-Body Bound States for 2+1 Particles

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For a three-body system interacting via resonant two-body interaction, there exist three-body bound states called Efimov states. Efimov states have attracted a lot of interest since their recent experimental realizations with ultracold atoms¹. One of the intriguing features of the Efimov states is their universal property: they can be characterized completely by two parameters, the s-wave scattering length and a short-range three-body parameter, and are unaffected by all other details of the potential. Recently, however, novel three-body bound states have been predicted theoretically², which depend only on the s-wave scattering length. Although the origin of these trimers is closely related to the Efimov effect, they have a distinct nature. We will discuss on the relationship between these two kinds of three-body bound states.

¹F. Ferlaino, and R. Grimm, *Physics*, **3**, 9 (2010)

²O. I. Kartavtsev, and A. V. Malykh, *J. Phys. B*, **40**, 1429 (2007)