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Exploration of Efimov window in the N-body sector: Universality and Scaling

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In this talk I will illustrate the universal behaviour that we have found inside the window of Efimov physics for systems made of N≤6 particles [1]. We have solved the Schroedinger equation of the few-body systems using different potentials, and we have changed the potential parameters in such a way to explore a range of two-body scattering length, a, around the unitary limit, $|a| \longrightarrow \infty$. The ground and excited-state energies have been analyzed by means of a recent developed method which allows to remove finite-range effects [2]. In this way we show that the calculated ground- and excited-state energies collapse over the same universal curve obtained in the zero range three-body systems as shown in [2].

[1] M. Gattobigio and A. Kievsky, arXiv:1309.1927 (2013).
[2] A. Kievsky and M. Gattobigio, Phys. Rev. A 87, 052719 (2013).

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