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Universality in weakly-bound bosonic clusters[1] JAVIER VON STECHER, JILA and Department of Physics, University of Colorado, Boulder, Colorado — We study the behavior of weakly bound clusters and their relation to the well-known three-body Efimov states. We adopt a model to describe universal behavior of strongly interacting bosonic systems in the large scattering length regime. Combining numerical methods such as quantum Monte Carlo and correlated Gaussians, we obtain an accurate description of cluster states. For three- and four-body systems, we recover the universal predictions. Then, we extend our study to larger systems and identify a series of states that can be qualitatively interpreted as adding one particle at a time to an Efimov trimer. The properties of these cluster states and their experimental signatures are discussed.

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Javier von Stecher
JILA and Dept of Physics, University of Colorado, Boulder, Colorado

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