

Abstract Submitted
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s-wave resonant short-range interactions in a d -dimensional finite volume¹ SHANGGUO ZHU, SHINA TAN, Georgia Inst of Tech — It has been known that the energy spectra of few or many particles with short-range interactions in a finite periodic box are shifted according to the size of the box. In particular, the two-body energy levels in a large box are approximately described by the Lüscher's formula. Here we study the energy of one particle scattered by a resonant s-wave short-range center in a d -dimensional finite volume. When $d = 6$, this one-body problem is closely related to the scattering of three particles in a three-dimensional box with a resonant three-body interaction. For $d \geq 4$, we derive systematic expansions of the low-lying energy eigenvalues at large box sizes.

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