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Nucleons in a finite volume: from ground states to the continuum

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Accessing continuum information in nuclear physics is challenging, especially in an ab initio setup. We present recent progress on this topic using finite-volume dependences. Finite-volume dependencies in nuclear physics are well-established analytical tools for numerical simulations. They reveal real-world properties from discrete energy levels in artificial finite boxes. In this talk, I briefly review Lüscher's original idea and then introduce recent developments for systems with long-range Coulomb forces and clusters. This progress allows the extraction of Asymptotic Normalization Constants in nuclear lattice simulations with minimum assumptions. We present two interesting applications to 20Ne and 16O ground-states.

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