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Nuclear structure and reactions from effective field theory¹

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The nuclear physics landscape appears today as a sequence of effective field theories (EFTs) connected to the Standard Model through symmetries and lattice simulations of Quantum Chromodynamics (QCD). Tremendous phenomenological success has been achieved in describing large parts of the nuclear chart in terms of interactions derived from EFT. Yet, many challenges and open questions remain on the path to theoretically predicting nuclear structure and reactions with equal accuracy and fully quantified uncertainty, a goal that is crucial for a fruitful synergy of theory and experiment in the FRIB era. In this talk I will discuss progress and perspectives for this effort, with a focus in particular on theoretical approaches to study exotic nuclear states.

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