

# Chiral effective field theory for exotic nuclei and fundamental symmetries

SCHWENK ACHIM<sup>1,2</sup>

<sup>1</sup>*ExtreMe Matter Institute EMMI, GSI Helmholtzzentrum für Schwerionenforschung GmbH, D-64291 Darmstadt, Germany*

<sup>2</sup>*Institut für Kernphysik, Technische Universität Darmstadt, D-64289 Darmstadt, Germany*

Exotic nuclei become increasingly sensitive to three-body forces. These components of nuclear forces are at the forefront of theoretical developments based on effective field theories of quantum chromodynamics. I will discuss our understanding of three-nucleon forces and their impact on exotic nuclei, and show how new measurements constrain chiral three-nucleon forces. Three-nucleon forces therefore provide an exciting link between the theoretical and experimental frontiers. Similarly, effective field theory can be used to constrain currents in nuclei. In the second part of the talk, I will discuss the application of chiral effective field theory to fundamental symmetries. I will focus on the xenon isotopes, which are important both for double beta decay and for direct dark matter detection.