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Storage rings for experiments with in-flight produced rare isotope beams

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Ion storage rings have been proven as powerful tools for precision experiments in atomic physics, nuclear physics and nuclear astrophysics involving unstable nuclides. In the last two decades, a variety of experiments have been conducted at the only operating facilities that are capable of providing and storing exotic ions, namely the ESR in Darmstadt, Germany and the CSRe in Lanzhou, China. Those experiments concern with mainly the ground-state properties of nuclei far from stability, such as masses and lifetimes. In this talk, a brief introduction to the facilities and the storage-ring-based experiments are presented, and selected results in nuclear physics and nuclear astrophysics are reviewed. Future experiments and improvement of the facilities are discussed.

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