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Nuclear experiments at KoBRA and Y2L in Korea

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Korea is currently constructing the radioactive ion (RI) beam accelerator facility called RAON. One of the experimental facilities called KoBRA, located in the low energy experimental hall, is expected to carry out nuclear astrophysics and nuclear structure experiments in the early phase of RAON. Several experiments using both stable and RI beams of tens of MeV/nucleon are considered for carrying out nuclear structure and nuclea astrophysics experiments. There is an underground laboratory called the Yangyang laboratory (Y2L) in Korea. Several rare decay measurements such as the half-life of 180mTa and the gamma ray transitions of E > 3 MeV in 208Pb were conducted at Y2L. The half-life of 180mTa is considered to be an important parameter for nuclear synthesis models for heavy elements. 208Pb is one of the most interesting nuclei because it is the doubly magic nucleus and its structure has been studied. However, some branching ratios of gamma transitions with Eg > 3 MeV were never been identified. Current activities and prospects of nuclear astrophysics using RI beams at KoBRA and rare decay measurements at Y2L will be discussed.

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