

Physics Cases and Instrumentation for the EURISOL-DF, next step towards Eurisol



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Type: **Probing fundamental symmetries and interactions with RIBs**

Identified applications of the ISOL@MYRRHA facility in phase 1

Studies of radioactive ion beams reveal promising possibilities for forefront research programs in various areas fundamental and applied physics. The ISOL@MYRRHA project suggests to incorporate an ISOL (isotope separation on line) installation into an Accelerated Driven System (ADS), called MYRRHA (a Multipurpose hYbrid Research Reactor for High-tech Applications) to be built in SCK-CEN (Mol, Belgium). The ISOL@MYRRHA will be particularly suited for high-precision, high-statistics experiments because of the peculiar availability of long uninterrupted beam times and the high reliability of the MYRRHA accelerator. In 2009, the physics program for ISOL@MYRRHA has been realized. Based on the revision and update of this proposal, we identify the physics cases suitable for the first phase of ISOL@MYRRHA, which will make use of 100-MeV proton beam of the MYRRHA accelerator. The research program encompasses topics in nuclear physics, fundamental interactions, solid-state and atomic physics, as well as applications for nuclear medicine. This presentation will discuss the scientific case of the ISOL@MYRRHA facility with emphasis on the physics cases that can be addressed in the first phase of the project.

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