

STATUS AND ACHIEVEMENTS OF THE EURISOL DESIGN STUDY IN THE FIRST YEAR OF ACTIVITY

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Following the results and recommendations of the EURISOL RTD conceptual design study performed within the 5th EC-framework programme, the EURISOL-DS design study will produce engineering-oriented studies and technical prototyping work for the next-generation ISOL-RIB facility in Europe. Such a world-class facility, complementary to the “in-flight” facility in construction at GSI (FAIR facility) is expected to come in operation at the end of next decade.

The study will address the major technological problems which are expected to arise in the creation of a facility able to provide RIBs in quantities which are orders of magnitude higher than those currently available anywhere else in the world. A feasibility study into the use of the EURISOL facility for the production of pure electron-neutrinos is an integral part of the design study.

In the first year of activity, a number of “ sensitivity studies” aiming to define and reach agreement on the reference parameters of the facility have been produced. Such studies have shown the criticalities in the feasibility of the multi-MW target station as it was conceptually designed in the RTD project, have demonstrated the need of a separated RIB accelerator for the beta-beam production and have suggested new improved configurations for the driver and RIB accelerator in order to implement a multi-user scheme. In synergies with the HIE-ISOLDE (CERN), SPIRAL2 (GANIL) and SPES (LNL) important tests of critical components related to the “beam preparation” layout, the RIB accelerator and the driver lattice have been successfully conducted.

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