Contribution ID: **77** Type: **CATHI poster**

Design Upgrade of the ISOLDE Target Unit for HIE-ISOLDE

Monday 17 December 2012 18:05 (1h 25m)

The High Intensity and Energy (HIE)-ISOLDE project is a major upgrade of the existing ISOLDE and REX-ISOLDE facilities with the objective of increasing the energy and the intensity of the delivered radioactive ion beam (RIB) [1]. In order to accommodate the future increase of primary beam intensity delivered by the new LINAC4 H- driver, a major study is being carried out to upgrade the existing designs of the ISOLDE target and its supporting infrastructure.
In particular, the extraction optics plays an important role in the initial beam transport and the quality of the beam supplied to the mass separators. Important factors include the emittance of the beam and the beam profile to avoid beam losses.
A new double electrode extraction system has been developed for simplifying and improving the interface between the target unit and the "Front End"(target coupling table). Numerical and experimental studies have been performed in order to define the new extraction geometry, and the coupling table has been adapted to keep the compatibility. The results of the studies and the mechanical model developed are presented and discussed in this poster.

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Session Classification: Poster session