

MARA, Mass Analyzing Recoil Apparatus, a new tool at JYFLACCLAB

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A new in-flight mass separator has been constructed at Jyväskylä Accelerator Laboratory (JYFLACCLAB). The configuration of this separator is QQQEDMD which is different from the existing symmetric devices having two electric dipoles (ED) and one magnetic dipole (MD) in between. With the configuration used at MARA the separator could be made shorter (space limitations) and the cost of the separator is reduced. MARA will be used for studies performed at the proton drip line below mass number 140 using symmetric fusion evaporation reactions (or slightly in inverse kinematics). It will be a complementary device to the existing gas-filled recoil separator RITU which is well suited for studies of heavier elements using asymmetric reactions. Construction of the MARA device has now been finished. Alpha source tests and a set of commissioning experiments using accelerated beams to study the ion-optics of the separator have been performed.

MARA is ready for an experimental campaign. In this work the MARA design will be presented. The status of the separator as well as the planned experimental campaigns will be discussed.