

## THE COMMISSIONING OF THE MARA IN-FLIGHT MASS SEPARATOR AND PRELIMINARY RESULTS

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Recently the MARA in-flight mass separator was successfully commissioned at the University of Jyväskylä. It will be used to study nuclei produced in fusion evaporation reactions in the mass region between the  $N=28$  and  $Z=82$  shell closures along the proton dripline. A stable beam from the K-130 cyclotron incident on a target is used to produce fusion evaporation products. Recoil decay tagging is the main analysis method which will be employed, which is made possible by a range of focal plane detectors: the new BB-20 DSSD implantation detector, silicon box detectors around the DSSD for escapes, a punch through silicon detector behind the DSSD for energetic light particles, then up to 6 germanium clover detectors for gamma ray detection. A multi-wire gas counter is also used to enable recoil gating of the results. In a recent experiment, a 368MeV  $^{78}\text{Kr}$  beam was used to bombard  $^{92}\text{Mo}$  target for calibration, followed by the same beam on a  $^{96}\text{Ru}$  target for production. The preliminary analysis of the results of this experiment show a strong candidate for the previously unobserved ground state proton emission from new isotope  $^{169}\text{Au}$ .