

Recent isomer studies using MARA recoil separator at JYFL-ACCLAB

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The Nuclear Spectroscopy Group (NSG) at JYFL-ACCLAB is employing two complementary in-flight separators in their spectroscopic studies. Recoil Ion Transport Unit (RITU) [1] is a gas-filled recoil separator and has been in operation for almost 30 years. Mass Analyzing Recoil Apparatus (MARA) [2], is a vacuum-mode double focusing mass separator, has been in use for about five years. As said separators are complementary and allow us to perform spectroscopic studies at and beyond the proton-drip line and in the Very Heavy Element (VHE) region starting from mass $A = 40$ onward. Separators can be occupied with detector setups at the target position and at the focal plane. At the target position particle array JYtube as well as a Ge-array, JUROGAM, are used. Focal planes consist of gas counters, silicon detectors, and Ge detectors. This allows simultaneous prompt and delayed spectroscopy to be performed. Recoil separators combined with various auxiliary detector arrays has allowed new spectroscopic information to be dug out. In this presentation recent new isomer studies using MARA recoil separator will be presented.

[1] J. Sarén, J. Uusitalo, M. Leino, and J. Sorri, Nucl. Instr. Meth. Phys. Res. A 654, 508 (2011).

[2] J. Uusitalo, J. Sarén, J. Partanen, and J. Hilton, Acta Physica Polonica B 50, 319 (2019).