Contribution ID: **28** Type: **not specified**

Measurement of nuclear transmutation via in-beam muon activation method

We have performed in-beam muon activation measurements to deduce the production branching ratio of the isotopes produced by the muon capture reaction of Pd isotopes.
The muon capture reaction is a capture of a negative muon into the proton via the weak interaction. While muon capture is analogous to electron capture, the excitation energy populated by the muon capture is much higher at about 5-50 MeV because of the large reaction Q value, and the residual nuclei emit several neutrons and gamma rays. Hence, the branching ratio of the produced isotopes provides the distribution of the excitation energies.
The experiment was performed at Rutherford Appleton Laboratory (RIKEN-RAL). The low-energy muon beam was obtained by the decay of the pion, which was produced by the reaction of a high-intensity proton beam on the graphite target. The muon is stopped at the targets and forms the muonic atom and induced muon capture reaction. Thanks to the time structure of the pulsed muon beam from the synchrotron, beta-gamma spectroscopy is used to measure the radioactivity of the produced isotopes between beam pulses and deduce their branching ratio.
We will report the result of the experiment in the poster presentation.

Experimental study on nuclear physics

Primary authors: NIIKURA, M (RIKEN & Dept. of Phys., Univ. of Tokyo); Dr NIIKURA, Megumi (RIKEN Nishina Center)

Presenter: NIIKURA, M (RIKEN & Dept. of Phys., Univ. of Tokyo)

Session Classification: Poster Session