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Production of 52Fe 12+ isomer around Fe nucleus via projectile fragmentation

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Electron capture rates of nuclei near iron in stars are important inputs for network calculation. In stars, nuclei may be excited due to the high temperature circumstances and then reactions on excited nuclei plays an important role in nucleosynthesis.
One possible way to perform reaction study on excited state is to measure the reaction with an "isomer"beam in inverse kinematics.The 52Fe(12+) at Ex= 7 MeV is a good candidate around iron nuclei.
We measured the isomer ratio of aiming to clarify the production mechanism of isomer via projectile fragmentation.
Experiments were performed at HIMAC which has synclotoron and fragment separator. The isomer ratio of 52Fe and its neighboring nuclei are measured by using projectile fragmentation with beams of 58Ni,59Co and 82Kr at 350 MeV/u as functions of longitudinal momentum transfer as well as transverse momentum transfers. To obtain the transverse momentum dependence the incident beam angle to the target was changed with a beam swinger system.
The results of on the isomer ratio around 52Fe nucleus will be presented.

Primary author: KAWATA, Keita (Center for Nuclear Study, University of Tokyo)

Presenter: KAWATA, Keita (Center for Nuclear Study, University of Tokyo)

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