

Further upgrade of methodology of in-RIbeam spectroscopy

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In-beam gamma-ray spectroscopy with RI beams has been cultivated and intensively used in the last two decades to make a major contribution to the progress of the spectroscopy on nuclei far from stability. The main reaction processes so far used with in-flight RI beams are the intermediate-energy Coulex, proton inelastic scattering, and one-nucleon removal reactions. These processes have been so useful to locate collective states as well as to determine the transition strengths. Yet the accessible range of the method is rather limited to low-lying low-spin excited states, and firm spin-parity assignments are often missing. Thus employment of new reaction channels and relevant methods to make unambiguous spin-parity assignments are demanded. In this talk I would like to propose a couple of methodological possibilities to cope with such demands. In particular I emphasize importance of the measurement of gamma-ray angular distributions possibly to afford a useful method for spin-parity assignment.

Primary author: ISHIHARA, Masayasu (RIKEN Nishina Center)

Presenter: ISHIHARA, Masayasu (RIKEN Nishina Center)

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