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Nuclear moment measurements of ^{130}Sn and ^{132}Sn isomers at RIBF

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The doubly-magic nucleus ^{132}Sn and its surrounding nuclei are expected to provide crucial insights into the nuclear shell model structure. In order to extend the nuclear structure studies for low lying states so far, here we carried out the measurement of nuclear magnetic moments of ^{130}Sn and ^{132}Sn , by focusing on their higher spin isomeric states. The ^{130}Sn and ^{132}Sn isomers have excitation energies of 2435 keV and 4715 keV, half-lives of 1.6 μs and 20 ns, and spin-parity of 10^+ and 6^+ , respectively.

The experiments were conducted at the RIKEN RIBF. The nuclear moments of the ^{130}Sn and ^{132}Sn isomers were measured by means of the Time-Dependent Perturbed Angular Distribution (TDPAD) method and the Time-Dependent Perturbed Angular Correlation (TDPAC) method, respectively.

In this poster, we will present the production of ^{130}Sn and ^{132}Sn isomers through the BigRIPS spectrometer, the principles and setup of the TDPAD and TDPAC measurements, and the prospects for future data analysis.

Type of contribution

poster

Are you a student or postdoc?

yes

Primary author: MATSUI, Ryusei (Kyushu University)

Co-authors: Dr GEORGIEV, Georgi (IJCLab, Orsay, France); GO, Shintaro (RIKEN Nishina Center); ICHIKAWA, Yuichi (Kyushu University)

Presenter: MATSUI, Ryusei (Kyushu University)

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