独立行政法人理化学研究所　仁科加速器研究センター
第83回RIBF核物理セミナー

RIKEN Nishina Center for Accelerator Based
The 83rd RIBF Nuclear Physics Seminar

Study of Gamow-Teller transition strengths in the intermediate nucleus of the ^{116}Cd double-beta decay by the ^{116}Cd(p,n) and ^{116}Sn(n,p) reactions at 300 MeV

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Gamow-Teller (GT) transition strengths in the double decay is essential for studying the nuclear matrix element of the two-neutrino double-beta decay, because this decay proceeds through two sequential GT transitions from the decay parent nucleus (A,Z) to daughter nucleus (A,Z+1) via the intermediate nucleus (A,Z+2).

In this presentation, I will introduce our study of the GT transition strengths in the intermediate nucleus of the ^{116}Cd double-beta decay, namely ^{116}In, where the strengths in a wide excitation energy region including a GT giant resonance have been obtained in both of the beta-and beta+ directions by measuring the double differential cross sections for the ^{116}Cd(p,n) and ^{116}Sn(n,p) reactions at 300 MeV.

A large amount of the strengths in the beta+ direction has been newly found in the GTGR region (Ex=5 to 20 MeV), which may indicate that a large part of the nuclear matrix element of the two-neutrino double decay comes from this region as well as the cancellation due to phase.

* This is the part of the consecutive seminars organized by CNS and RIBF.

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The seminar will be given in English

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