独立行政法人理化学研究所　仁科加速器研究センター
第183回 RIBF核物理セミナー
RIKEN Nishina Center for Accelerator Based Science
The 183rd RIBF Nuclear Physics Seminar

# Beta-decay half-lives of N~82 nuclei on the r-process path

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The decay of about 40 very neutron-rich nuclei with neutron number N~82 were studied at the RIBF facility for the elements Rb to Sn. New results include the half-life of the six r-process waiting points: $^{127}Rh_{82}$, $^{128}Pd_{82}$, $^{131}Ag_{84}$ , $^{134}Cd_{86}$, $^{137}In_{88}$, and $^{138}Sn_{88}$. These nuclei determine abundance peaks and the breakout of the N=82 r-process bottleneck. The new measurements allow a more reliable comparison between the observed and calculated abundances in the solar system and in metal-poor stars, which constrain the r-process path and its conditions. The new data are also of significance for nuclear structure. The unknown evolution of the N=82 shell closure is, in fact, a main challenge for nuclear models, whose predictions across the shell gap are often diverging. In this seminar I will present the experiment and will discuss its results and implications.

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RIBF Hall (rm.201), RIBF bldg., RIKEN

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