



独立行政法人理化学研究所 仁科加速器研究センター  
第52回RIBF核物理セミナー  
RIKEN Nishina Center for Accelerator Based Science  
The 52<sup>nd</sup> RIBF Nuclear Physics Seminar

Hypernuclear spectroscopy with stable heavy ion beams and rare isotope beams  
The HypHI project at GSI and FAIR in Germany

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Hypernuclei, subatomic systems involving strangeness, have been studied already for a half centuries in order to investigate hyperon-nucleon and hyperon-hyperon interactions. However, the isospin dependence of hypernuclei and the hypernuclear magnetic moments have not been investigated. The international HypHI project aims to perform hypernuclear spectroscopy by heavy ion collisions at GSI and FAIR not only with stable heavy ion beams but also with rare isotope beams from FRS and super-FRS. In the HypHI experiments hypernuclei will be produced as a projectile fragment, therefore wide distributions of isospins of produced hypernuclei and direct measurements of hypernuclear magnetic moments will be reachable. The HypHI collaboration currently prepares for the first experiment at GSI. In the experiment,  ${}^6\text{Li}$  beams at 2 A GeV will be impinged on a carbon target to produce  ${}_{\Lambda}^3\text{H}$ ,  ${}_{\Lambda}^4\text{H}$  and  ${}_{\Lambda}^5\text{He}$ , which will be identified by invariant mass spectroscopy, to prove the principle of the HypHI experiments. After the Phase 0 experiments, measurements on proton/neutron rich hypernuclei and hypernuclear magnetic moments are planned. In the seminar, the overview of the HypHI project and the detail on the first experiment will be discussed.

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*The seminar will be given in English.*  
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