

GP-PU Progress Report Meeting 2020 Autumn

Missing mass spectroscopy of medium-heavy Λ hypernuclei at JLab and my recent activities

Today's Contents

Motivation and Outline of my experiment

My recent activities

Credits and Points I got

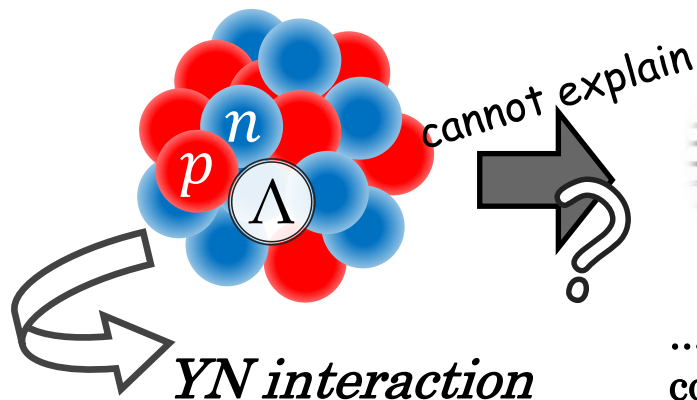
Future Plan

TAKERU AKIYAMA (秋山タケル)

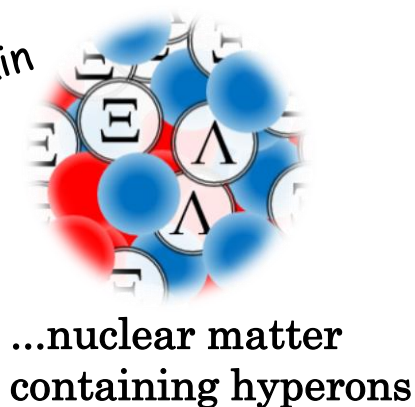
Graduate Student (M2), TOHOKU UNIV.

October 2nd, 2020

Hypernuclei

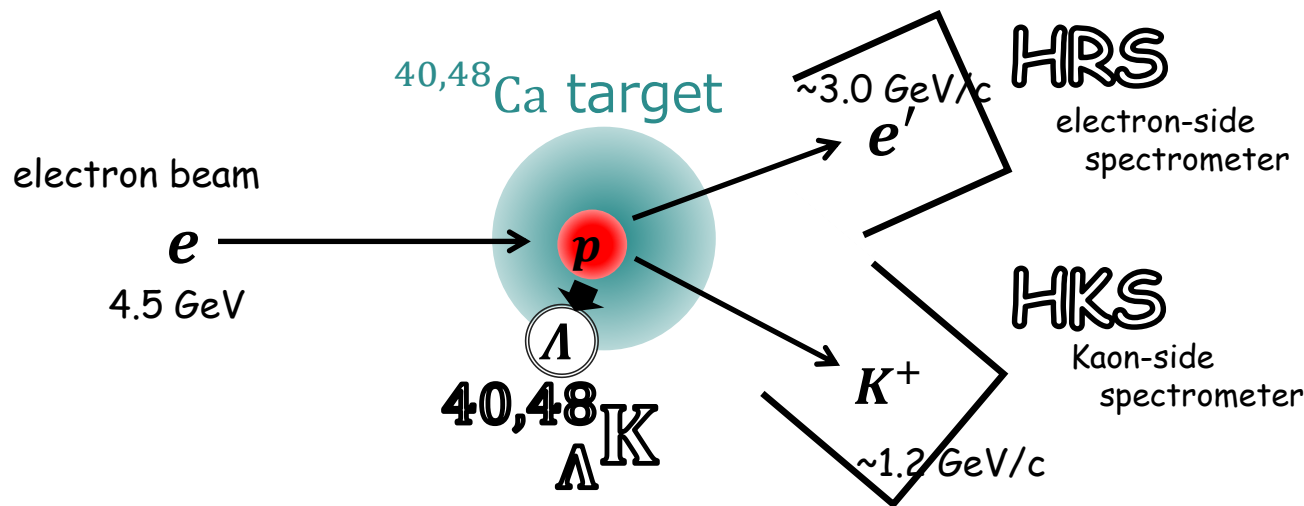


Neutron Stars



JLab E12-15-008 experiment

- *) mass spectroscopy of $^{40,48}_{\Lambda}\text{K}$
- *) approaching ΛNN interaction



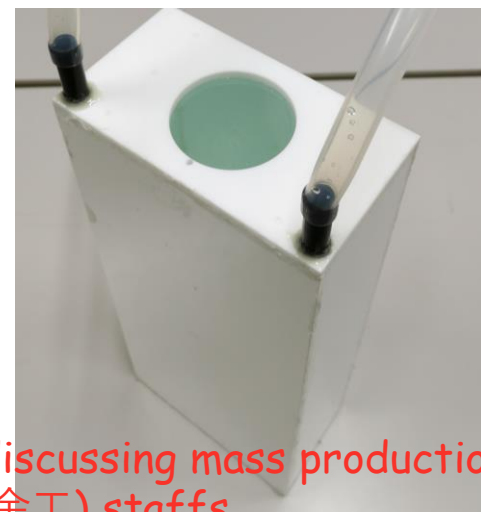
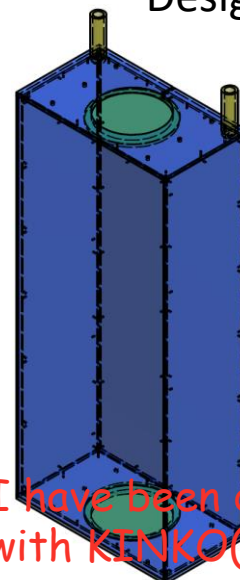
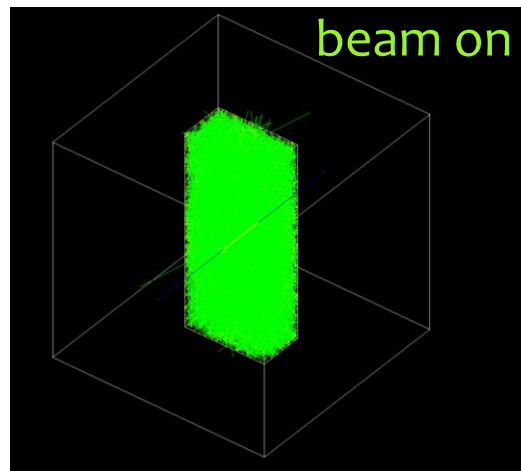
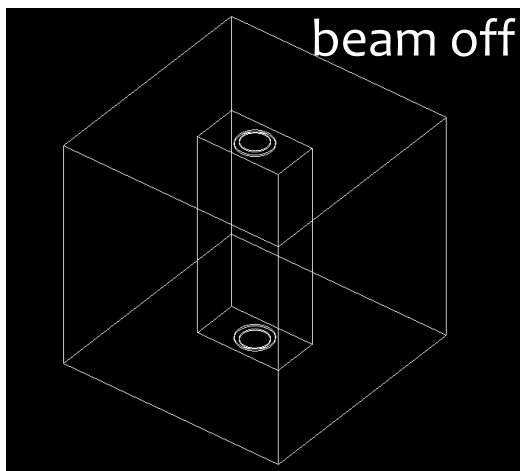
missing mass spectrum $M_{HYP} = \sqrt{(E_e + M_{target} - E_{e'} - E_K)^2 - (\vec{p}_e - \vec{p}_{e'} - \vec{p}_K)^2}$

- JLab Trip (February ~ March, about two weeks)



- R&D of a Water Cherenkov Detector for Kaon Identification at HKS
Optical Photon Simulation (Geant4)

Designing a detector



I have been discussing mass production with KINKO(金工) staffs

Requirements for Master's program

- Survey on Physics for the Universe (宇宙創成物理学概論) : 2 credits
- Advanced Lectures (特論・集中講義) : 6 credits / 6 required
原子核物理学特論 (2), 原子核理論特論 (2), 加速器科学特論 (1),
素粒子・原子核物理学特殊講義IV (1)
- GP-PU Seminar: 10 GSP / 10 required
SNP School 2019 (2), Futamase (3), Li (2), School on Modern Physics Tohoku (3)
..... on the condition that I participate in SNP School 2020
- GP-PU School: I will attend SNP School 2020 on December.

Additional

- GP-PU experimental course : GEP 4 / 13 required (Doctoral Program)
I will join another experiment in this semester.

My Research (E12-15-008)

- SNP School: December
- **Master's Thesis: ~January**
- WC Mass Production & Shipping: ~March
- other works: ~
 - Monte Carlo simulation, Target Ladder, Works at JLab, ...
 - beam time in 2022
 - working with collaborators

Research Abroad (required in DC)

- This experiment is carried out at JLab (VA, United States)
- promoting JLab experiment (on site works & online meetings)