

Analysis status of nn Λ spectroscopy at JLab

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Study of $nn\Lambda$

Knowledge of baryon-baryon interactions

N - N interaction → Well known by scattering experiment

Λ - N interaction

- $\Lambda - p$ interaction : Limited data (over $\pm 10\%$)
- $\Lambda - n$ interaction : **No data**

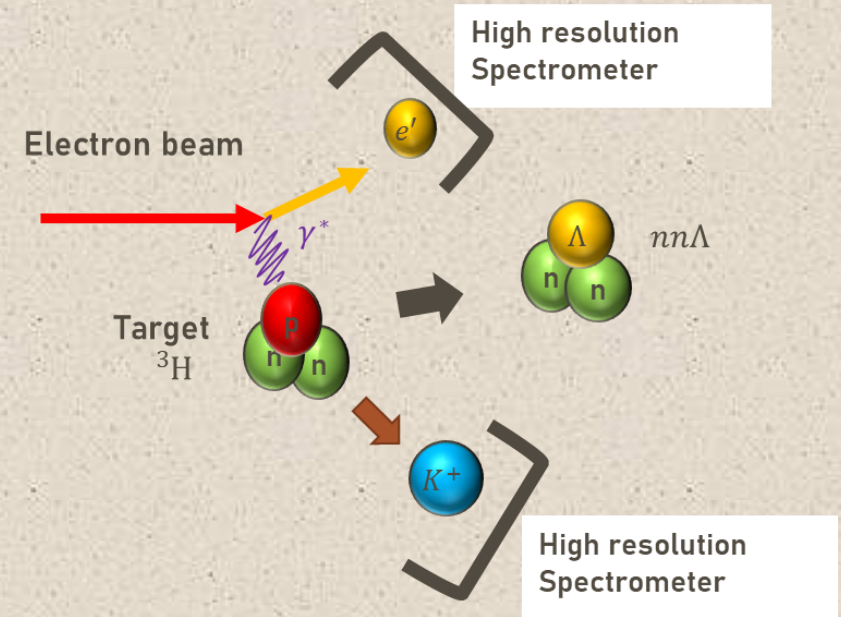
→ We study $\Lambda - n$ interaction **by $(e,e'K)$ reaction at JLab**

$nn\Lambda$

A $nn\Lambda$ which is composed of two nucleons and a Lambda is a multi-baryon-system with no charge.

Studying of $nn\Lambda$ system, we expect to obtain information of the $\Lambda - n$ interaction.

We performed $nn\Lambda$ experiment at JLab (2018 Oct.) by using $(e, e'K^+)$ reaction



Plan of my study

M2

$nn\Lambda$ experiment (was performed in November 2018)

Particle Identification (PID) (March, 2020)

D1

(Energy) Calibration (achieved high accuracy $\delta B_\Lambda \sim 100$ keV)

D2

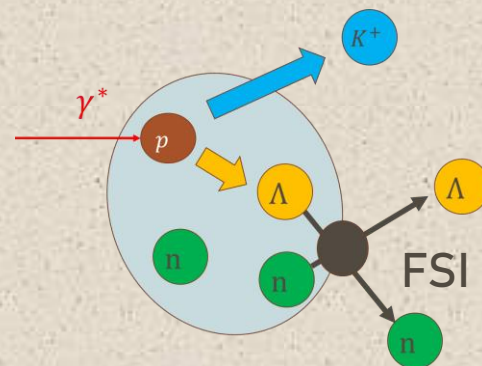
now

Study of Λ - n Final state interaction (FSI) with ${}^3\text{H}(e, e'K^+)X$

D3

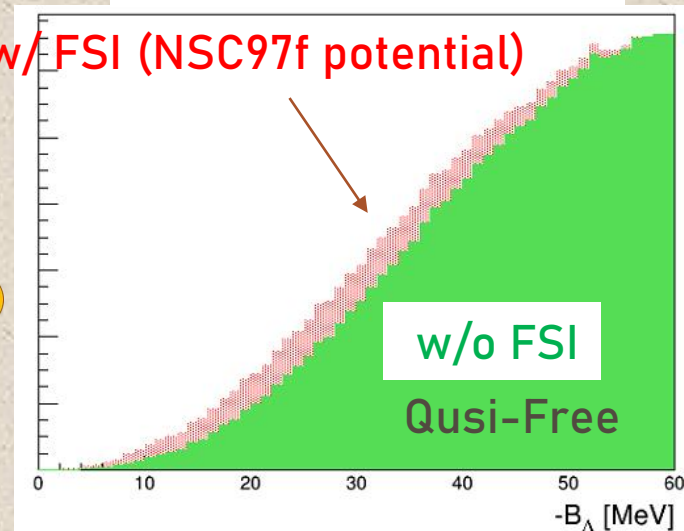
QE2

$nn\Lambda$ state (bound or unbound)
FSI study (Λ - n potential)



Simulation of ${}^3\text{H}(e, e'K^+)X$

w/ FSI (NSC97f potential)



Progress of GP-PU Program

Program	Current credits	Requirement credits
GSP&GSAP	6	10
GEP	12	13
Overseas Program	21 days	3 months

Plan of getting additional credits

GSP

- SNPschool(2020) (+3 credits)
- 1 seminar

GEP

- N1 (11/9,10 ,2020) (+ 3 credits)

Overseas program

- APFB2020 (Asian-Pacific Conference on Few-body Problem in 2020) (+ a few days)
- Stay JLab for preparation of $^{40,48}_{\Lambda}K$ experiment (+2 months 2021 Apr. to)