

Analysis Status of the Hyperon Electroproduction Experiment at JLab

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M2

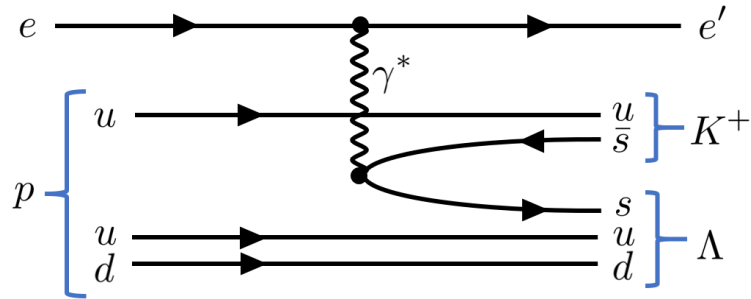


TOHOKU
UNIVERSITY



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国際共同大学院

Λ Electroproduction: $p(e, e' K^+) \Lambda$



Experiment

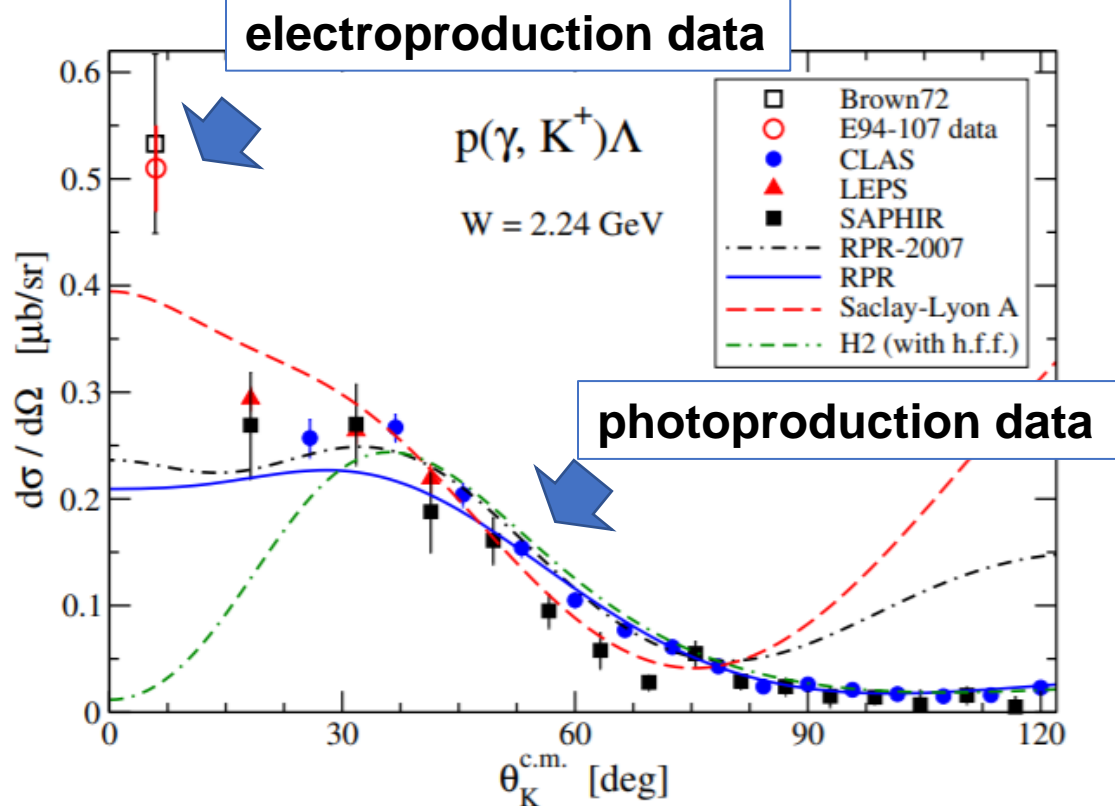
- photoproduction ($Q^2=0$) data: reported by CLAS, SAPHIR, LEPS, ...
- electroproduction ($Q^2>0$) data: few data exist (JLab: E94-107, ...)

Theory

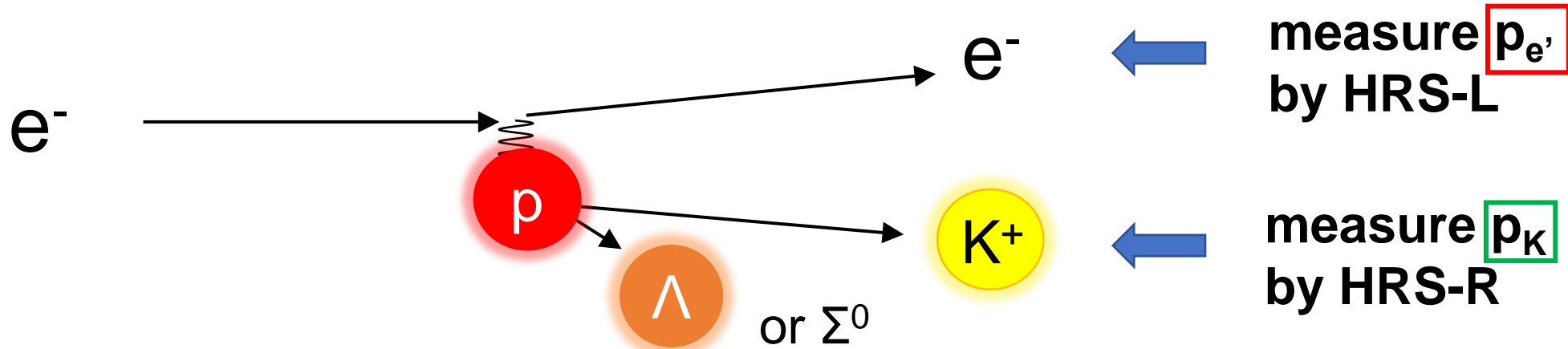
- parameters tuned by photoproduction data
- uncertainty remains in low- Q^2 and small θ_K

My Work

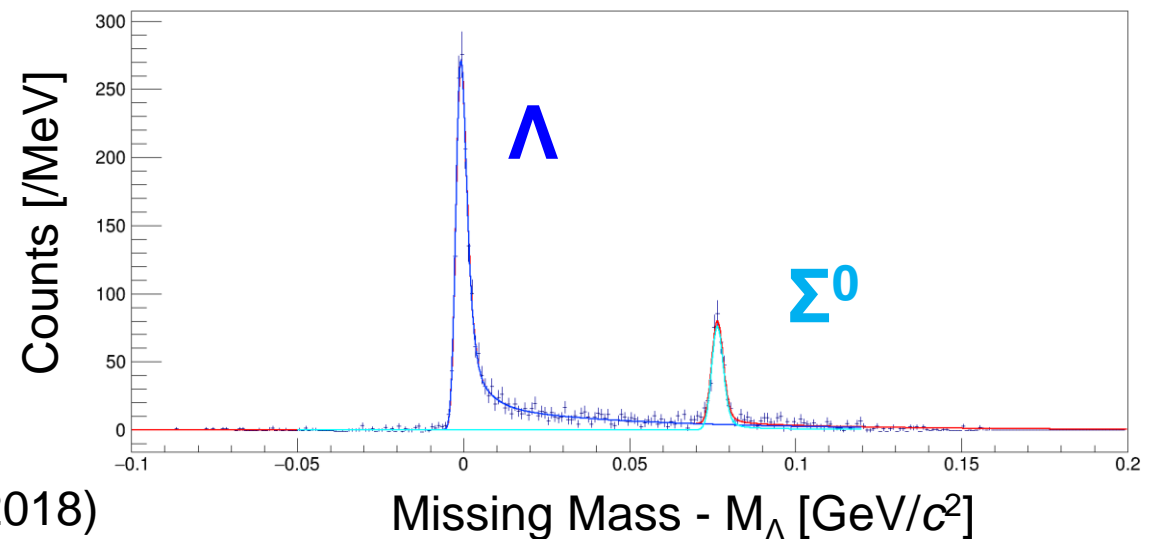
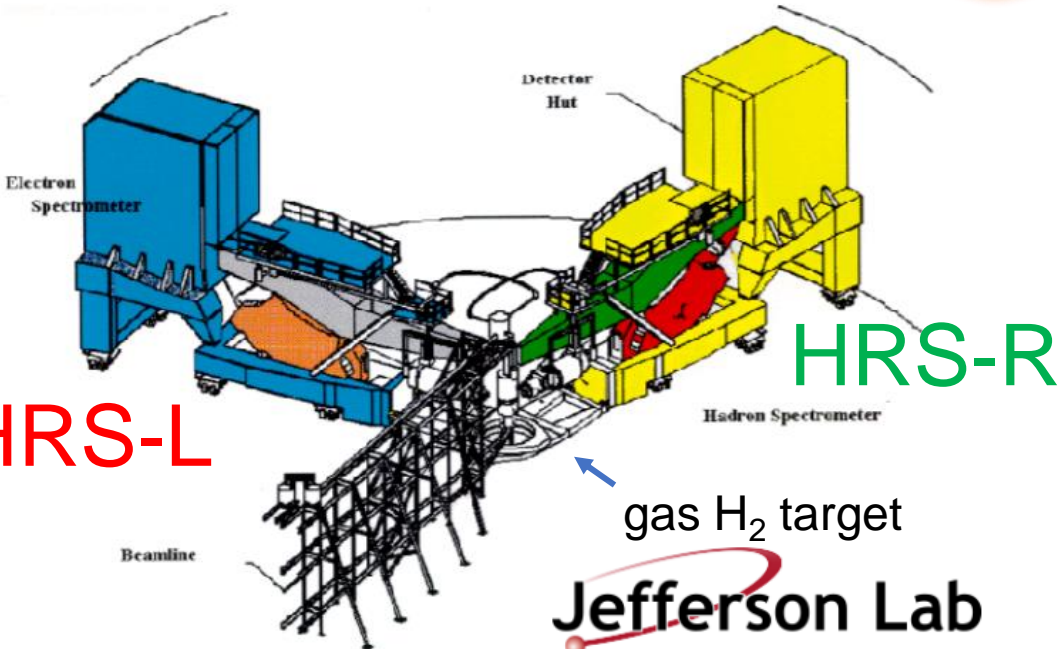
- derive the $d\sigma/d\Omega$ of the $p(e, e' K^+) \Lambda$ reaction using JLab E12-17-003 experiment data ($Q^2 \sim 0.5 \text{ GeV}^2$, $\theta_K^{\text{CM}} \sim 7 \text{ deg}$)



Hyperon Electroproduction: $p(e, e' K^+) \Lambda / \Sigma^0$



$$\text{Missing Mass} = \sqrt{\{(E_e - E_{e'}) + M_p - E_K\}^2 - \{(P_e - P_{e'}) - P_K\}^2}$$



data taken at Hall A (Oct. – Nov., 2018)

<https://hallaweb.jlab.org>

Kazuki Okuyama

GPPU Status #1 (Oct. 9, 2020)

My Activities as a GP-PU student

In the last semester:

- I attended a GPPU School (School on Modern Physics Tohoku) (Aug. 31 – Sep. 3, 2020)

Upcoming:

- 2020 Fall Meeting of the APS Division of Nuclear Physics (Oct. 30, 2020)
Mini-Symposium: Hyper Nuclear Spectroscopy I
“Differential cross section of the $p(e, e'K^+) \Lambda/\Sigma^0$ reaction at $Q^2=0.5$ [(GeV/c) 2]”
➔ Approved as a GP-PU International Training
- SNP School 2020 (Dec. 2 – 5, 2020)
➔ I'm preparing an abstract

Doctor course: We're going to perform next experiment at JLab in 2022 – 2023 (?)

- ➔ I visited JLab for the preparation (February – March, 2020)
I will stay in JLab and prepare for this exp. (if possible)