



# Opening, Collaboration updates

S.N.Nakamura Univ. of Tokyo



# Upcoming Hypernuclear Experiments at JLab

## Experiments

- **E12-24-003** "Studying Lambda interactions in nuclear matter with the  $^{208}\text{Pb}(e,e'K^+)^{208}_{\Lambda}\text{Tl}$  reaction" [42 PAC days]
- **E12-24-004** "Study of charge symmetry breaking in p-shell hypernuclei" [24 PAC days]
- **E12-24-011** "Study of a triaxially deformed nucleus using a Lambda particle as a probe" [28 PAC days]
- **E12-24-013** "An isospin dependence study of the Lambda-N interaction through the high precision spectroscopy of Lambda hypernuclei" [55 PAC days]

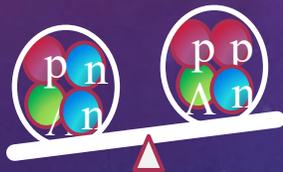
## Run Group Experiment (Parasitic Experiment)

- **E12-15-008A** "High-resolution spectroscopy of light hypernuclei with the decay-pion spectroscopy"

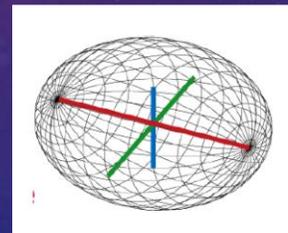
### Hyperon Puzzle



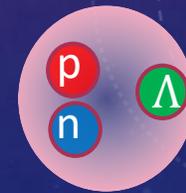
### CSB of $\Lambda$ Hypernuclei



### $\Lambda$ probe to tri-axial nucleus



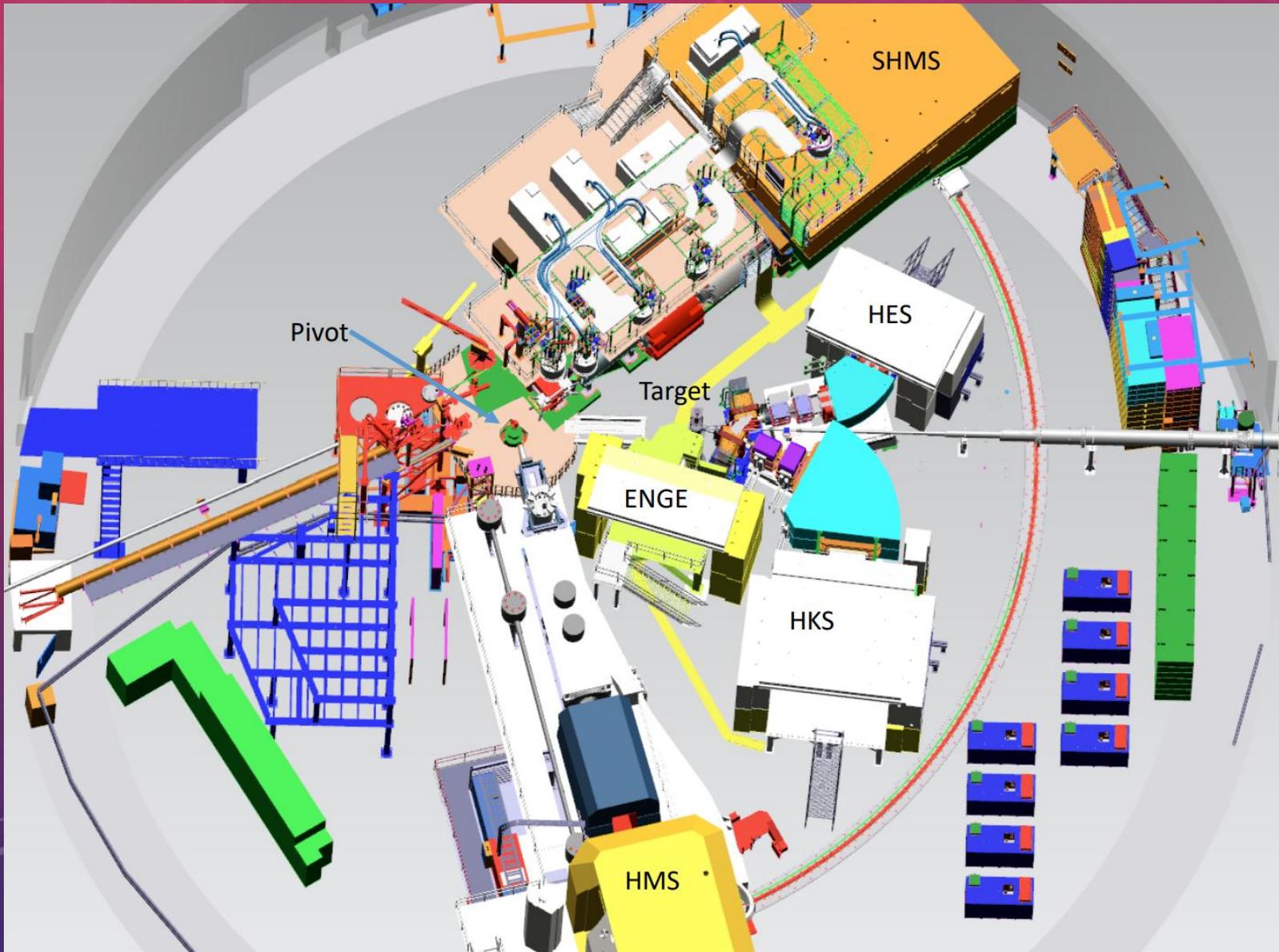
### Hypertriton Puzzle



Our 2<sup>nd</sup> ERR is scheduled at 20, 21 May, 2026.

During this two-day collaboration meeting, we will assess the current preparation status for the ERR and identify the key actions required to ensure a successful review.

# A single setup for five approved experiments



## Today morning

**Opening, Collaboration updates**  
Satoshi N. Nakamura (U Tokyo)

**JLab updates**  
Mark Jones (JLab)

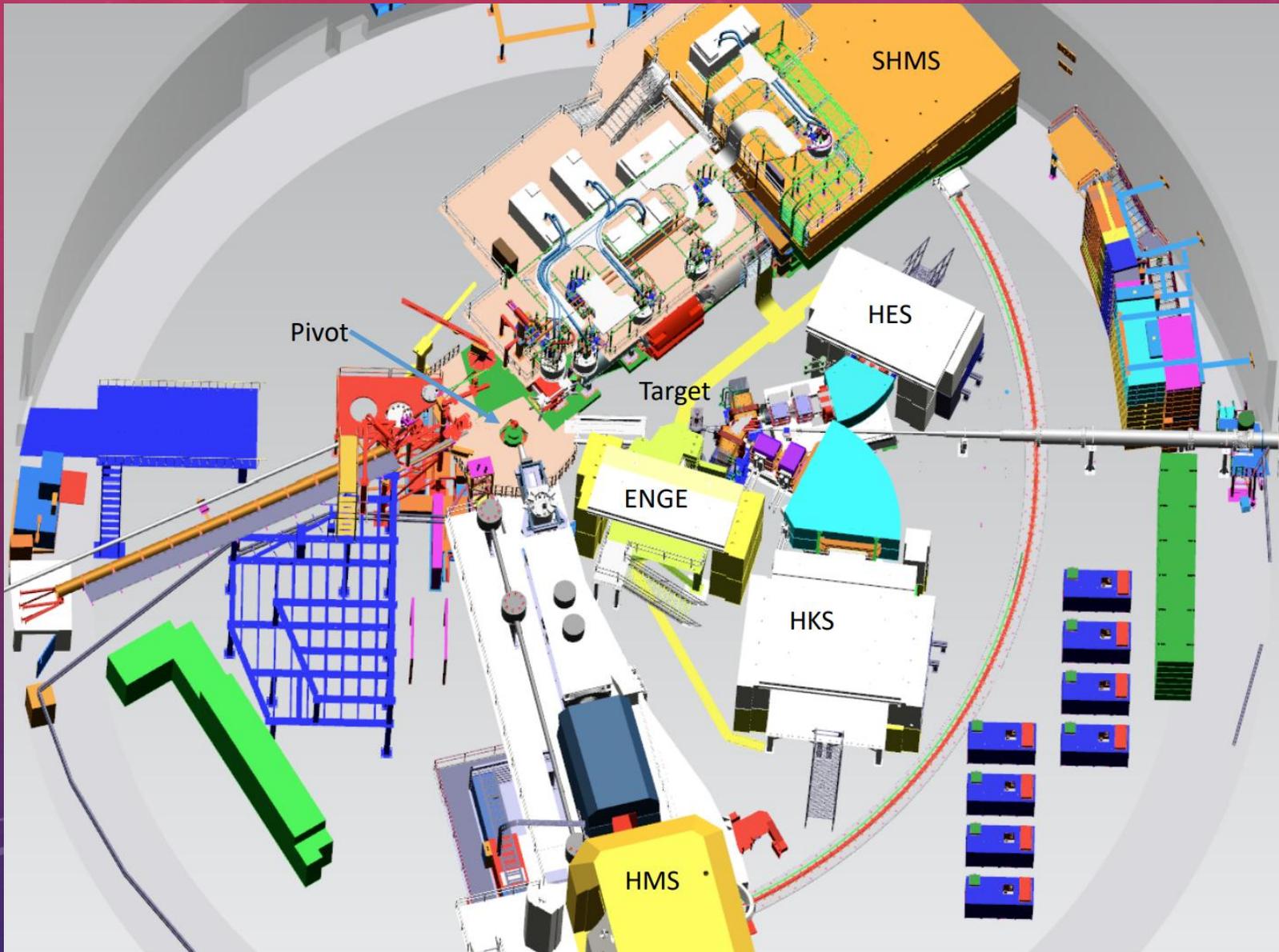
**Overview of HKS-HES updates**  
Toshiyuki Gogami (Kyoto University)

**Overview of ENGE updates**  
Sho Nagao (U Tokyo)

**Hypernuclear Design Status**  
Jamine Shiflett (JLab)

**Target system**  
David Meekins (Jefferson Lab)

# A single setup for five approved experiments



## Today afternoon

**Beam line + SLI**  
Dave Gaskell (JLab)

**DAQ**  
Alexandre Camsonne (JLab)

**Analysis Software**  
Sanghwa Park (JLab)

**Radiation budget**  
Pavel Degtiarenko (JLab)

**Documentation (safety etc.) etc.20分**  
William Henry (JLab)

**Free Discussion**

# Tomorrow : Status updates and progress reports

## **[Online Presentation] ENGE Focal Plane Detector**

Shunsuke Niwa (The University of Tokyo)

## **[Online Presentation] Water Cherenkov Counter in HKS**

Mr Kaito Higashimoto (The University of Tokyo)

## **TOF Detectors (HKS/HES/ENGE)**

Kotaro Nishi (The University of Tokyo)

## **HKS Drift Chamber (KDC)**

Ravindu Kumaragamage (Hampton University)

## **HES Drift Chamber (EDC)**

Ken Nishida (The University of Tokyo)

## **Maximum heat on experimental target estimated by ANSYS**

Thermal simulation for targets by ANSYS will be presented.

Kei Ishido (Kyoto University)

## **Radiation simulation for experimental area**

Jin Takahashi (The University of Tokyo)

13:20

## **Measurement of Meson Electroproduction Differential Cross Sections for $\eta'$ , $\omega$ , $\rho^0$ (E'OR) in the Threshold Region Using HKS-HES Setup**

Ralph Marinaro (Christopher Newport University)

13:50

## **Closing**

# Origins of Matter Explored through Femtoscale Quantum Many-Body Systems --- Nurturing Talent in the Quantum Era

A new grant from the Japanese government was approved in December 2025 and will run through March 2032. Nurturing Young researcher is important goal of this project. CERN, BNL and JLab are key facilities.

**Origins of Matter Explored through Femtoscale Quantum Many-Body Systems**  
*Nurturing Talent in the Quantum Era*

**Quark many-body system**  
LHC-ALICE project @CERN

**Shining talent in the new era of quantum science and technologies**

**Dispatch young researchers for leader development**

**Brookhaven National Laboratory**

**EIC-ePIC**

**Jefferson Lab**

**HKS**

**Gluon many-body system**  
EIC-ePIC project @BNL

**Matter Origin**  
Mass / Spin Structures Degrees of Freedom

**Quark System**  
>10fm

**Gluon System**  
<0.1fm

**Baryon System**  
1~10fm

**Universal Quantum Nature across Energy Scales**

**Theoretical and computational physics**  
**Quantum Computing**

**Interdisciplinary**

**Overseas Dispatch**  
International Network

**Future Academic Leaders**

**Young Researcher Projects**

T. Chujo (Tsukuba) LHC-ALICE

K. Shigaki (Hiroshima) M. Van Leeuwen (CERN, Utrecht)

K. Fukushima (Tokyo) Y. Hidaka (Kyoto)

T. Gunji (Tokyo) A. Deshpande (SUNY, BNL)

S.N. Nakamura (Tokyo) P. Achenbach (JLab)

**Baryon many-body system**  
HKS, CLAS12 projects @JLab

