Round Table Discussion

TAKU GUNJI

CENTER FOR NUCLEAR STUDY

THE UNIVERSITY OF TOKYO

Round table discussion

▶ **We should disucss how Asian countries can work together to advance some projects.**

   ▶ **Beamtest facility in Japan**

   ▶ **AC-LGAD**

   ▶ **ZDC**

   ▶ **(Echelon2 Computing)**

Beamtest facility

▶ **KEK has new testbeam facility (electron 1-5 GeV)**

   ▶ **https://wiki.kek.jp/display/artbl/AR+Test+Beam+Line+Home (in Japanese)**

   ▶ **https://www2.kek.jp/imss/pf/apparatus/schedule/ (in Japanese)**

   ▶ **Regular call for the beamtest (1-3, 4-7, 10-12)**

      ▶ **MAPS tests by Korea and Japan (11.3-18.3)**

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ZDC
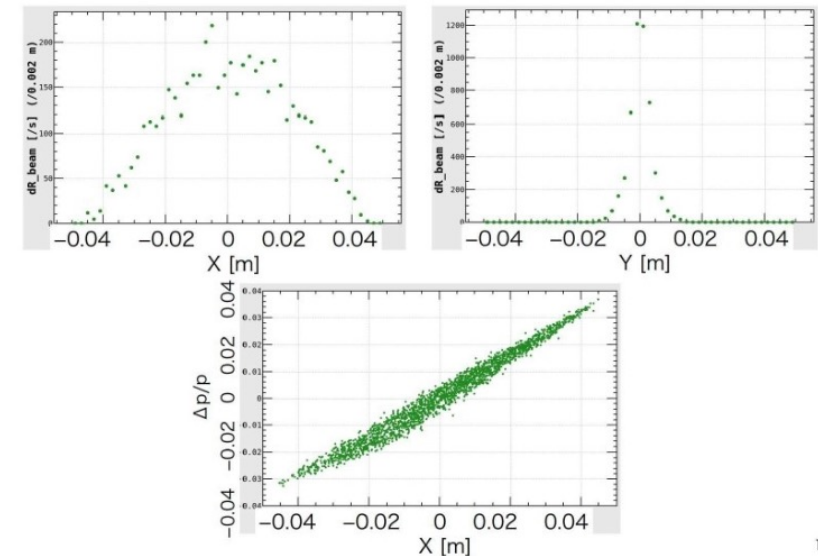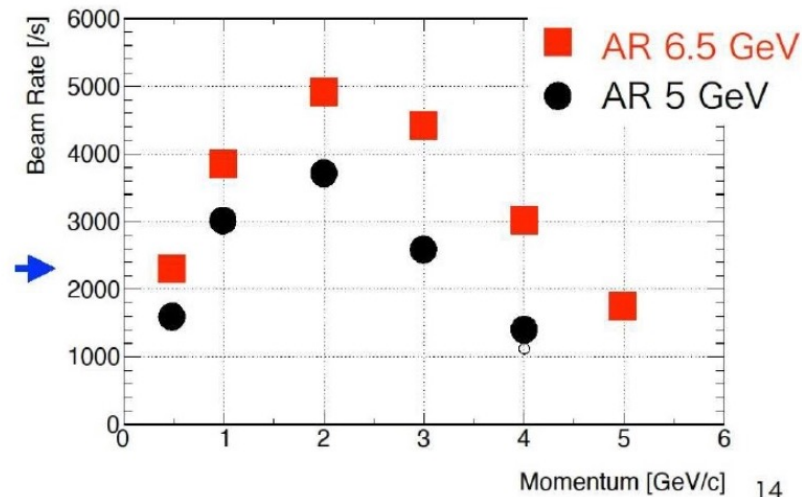
▶ **What's the next steps?**

   ▶ **Integrate Crystal + (W-Si) + Hadroic parts into one and do the beamtest?**

      ▶ **Crystal and ALICE-FoCAL (W-Si) beamtest at Tohoku Japan in 2. 2024**

   ▶ **Readout electronics and intergation?**

      ▶ **Final chips? Compatible with SRO?**

   ▶ **Full chain tests with streaming SRO (RDO -> DAM -> Computing)**

▶ **Budget Plans among countries**

   ▶ **Tiawan, Korea, Japan?**

AC-LGAD

- **CD2 target**
  - **Barrel: Full-size strip-type AC-LGAD sensor + FCFDv1 (ana. block), Compatibility of FCFD and strip-type AC-LGAD**
  - **Forward: Full-size pixel-type AC-LGAD sensor + EICROC0, Full chain test setup with Service Hybrid**
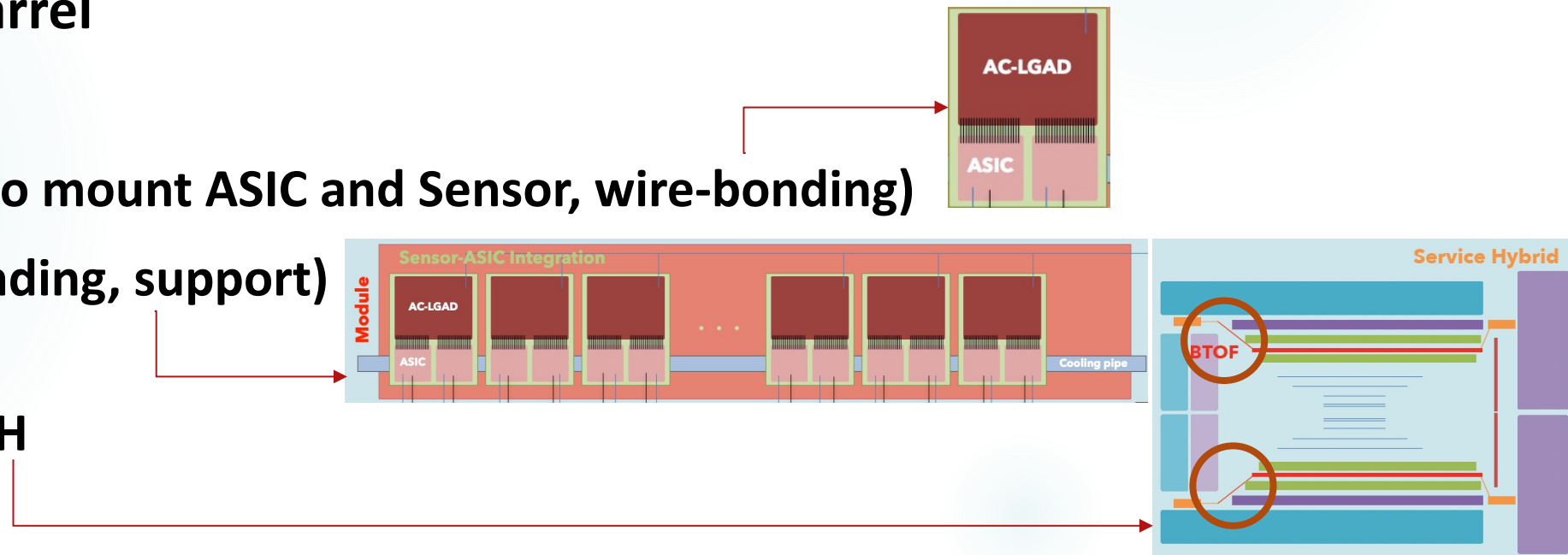
- **Needed R&D for Barrel**
  - **Sensor, Asic R&D**
  - **Integration (PCB to mount ASIC and Sensor, wire-bonding)**
  - **Module (PCB, bonding, support)**
  - **1.3 m Flex-bus from module to SH**

AC-LGAD

▶ **Asian contacts**

  ▶ **Sensor, Asic R&D**

  ▶ **Integration (PCB to mount ASIC and Sensor, wi**

    ▶ **PCB?**

  ▶ **Module (PCB, bonding, support)**

    ▶ **PCB?**

    ▶ **Support (NCKU)**

  ▶ **1.3m Flex-bus from module to SH**

    ▶ **ORNL + RIKEN & Nara-W (INTT bus-extender)**

  ▶ **Service hybrid (US)**

  ▶ **Power board (US)**

Sorted by activities

- **AC-LGAD**
  - 🔴 Hiroshima University
  - 🇰🇷 Korea University
  - 🇰🇷 Kyungpook National University
  - 🔴 Shinshu University
  - 🇨🇳 University of Science and Technology of China
  - **+ India**

- **Frontend ASIC**
  - 🔴 Hiroshima University
  - 🔴 Nara Woman's University
  - 🔴 Shinshu University
  - 🇨🇳 University of Science and Technology of China
  - **+ India**

- **Sensor-ASIC integration**
  - 🔴 Hiroshima University
  - 🇹🇼 National Taiwan University

- **Support and Module structure, Cooling**
  - 🇹🇼 National Cheng Kung University

- **Module Assembly**
  - 🔴 Nara Woman's University
  - 🇹🇼 National Taiwan University
  - 🔴 RIKEN

- **Stave Assembly**
  - 🔴 Nara Woman's University
  - 🇹🇼 National Taiwan University
  - 🔴 RIKEN

- **Power Supply**
  - 🇹🇼 National Cheng Kung University

- **Simulation**
  - 🔴 Hiroshima University
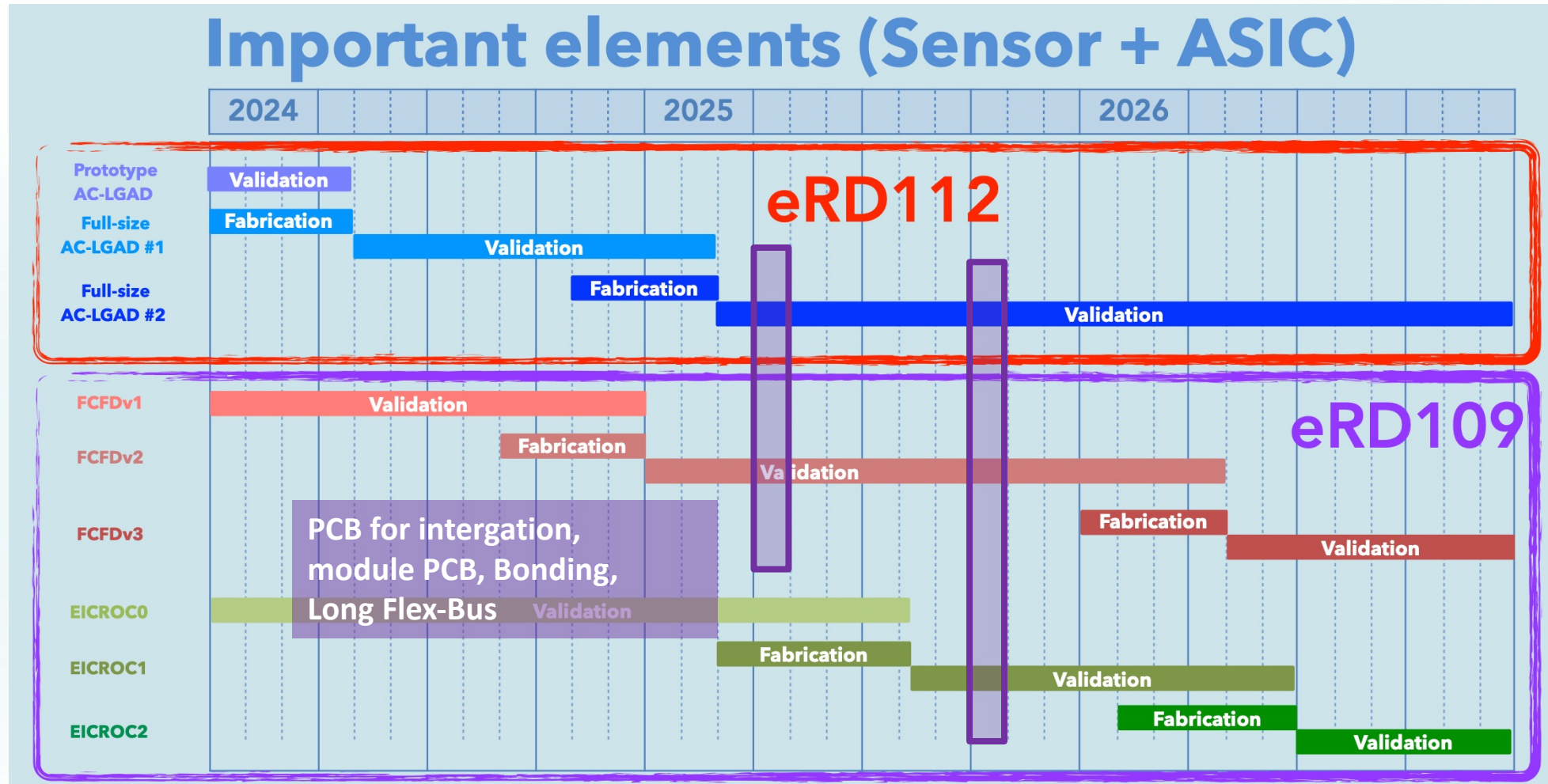 - 🇹🇼 National Central University

- **DAQ and Reconstruction**
  - 🔴 University of Tokyo

AC-LGAD

▶ **Milestones for full chain tests (4.2025, 10.2025)**

AC-LGAD

▶ **Mass production**

 ▶ **Sensor and chip QA and testing**

  ▶ **Several places will be needed since the number of sensors is ~10k**

 ▶ **PCB production, Flex-bus production,**

 ▶ **Integration (bonding) and Assembly to modules**

 ▶ **Module testings**

 ▶ **….**

Echelon2 computing

- **Streaming DAQ/Computing scenario for ePIC**
- **Echelon2 will be based on an international partnership (-> RRB discussion)**
- **It is good to have E2 Facility in Asia**