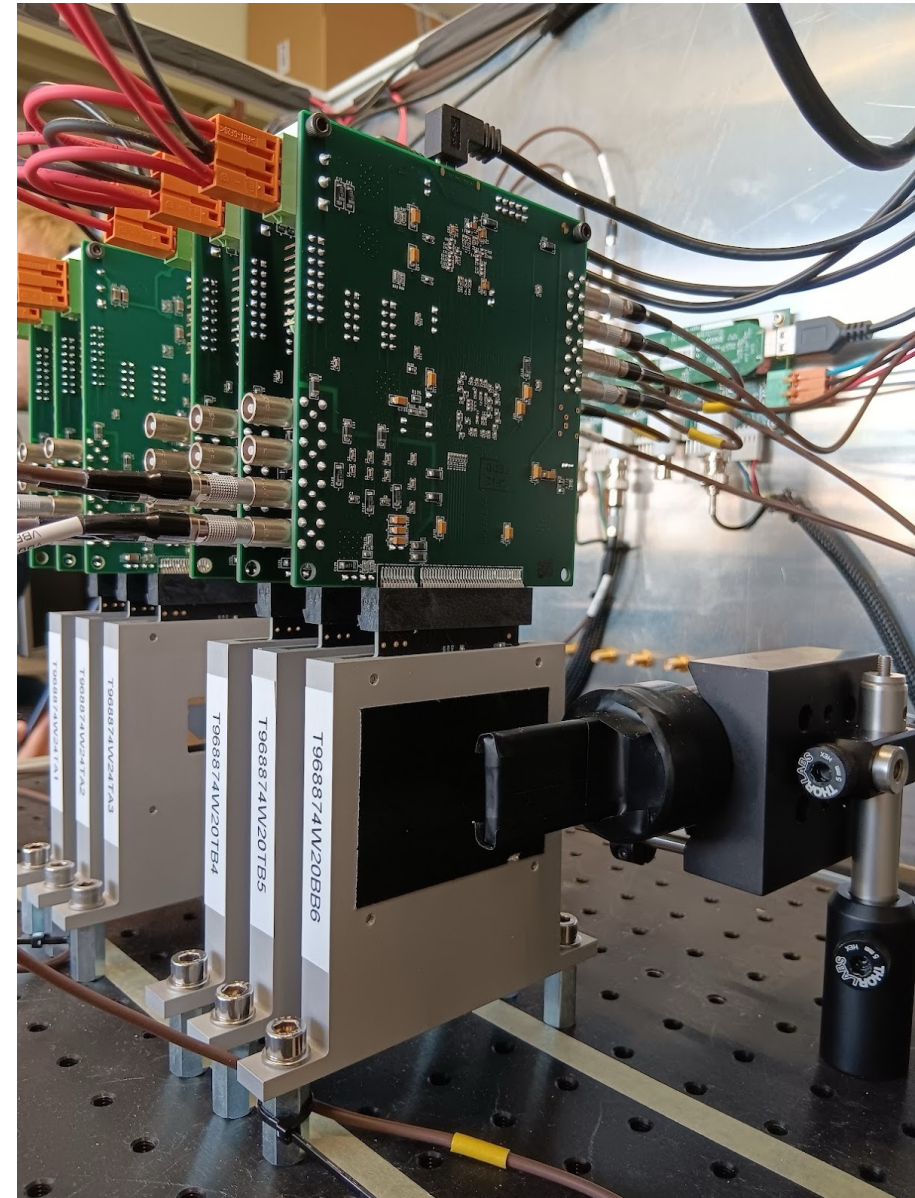
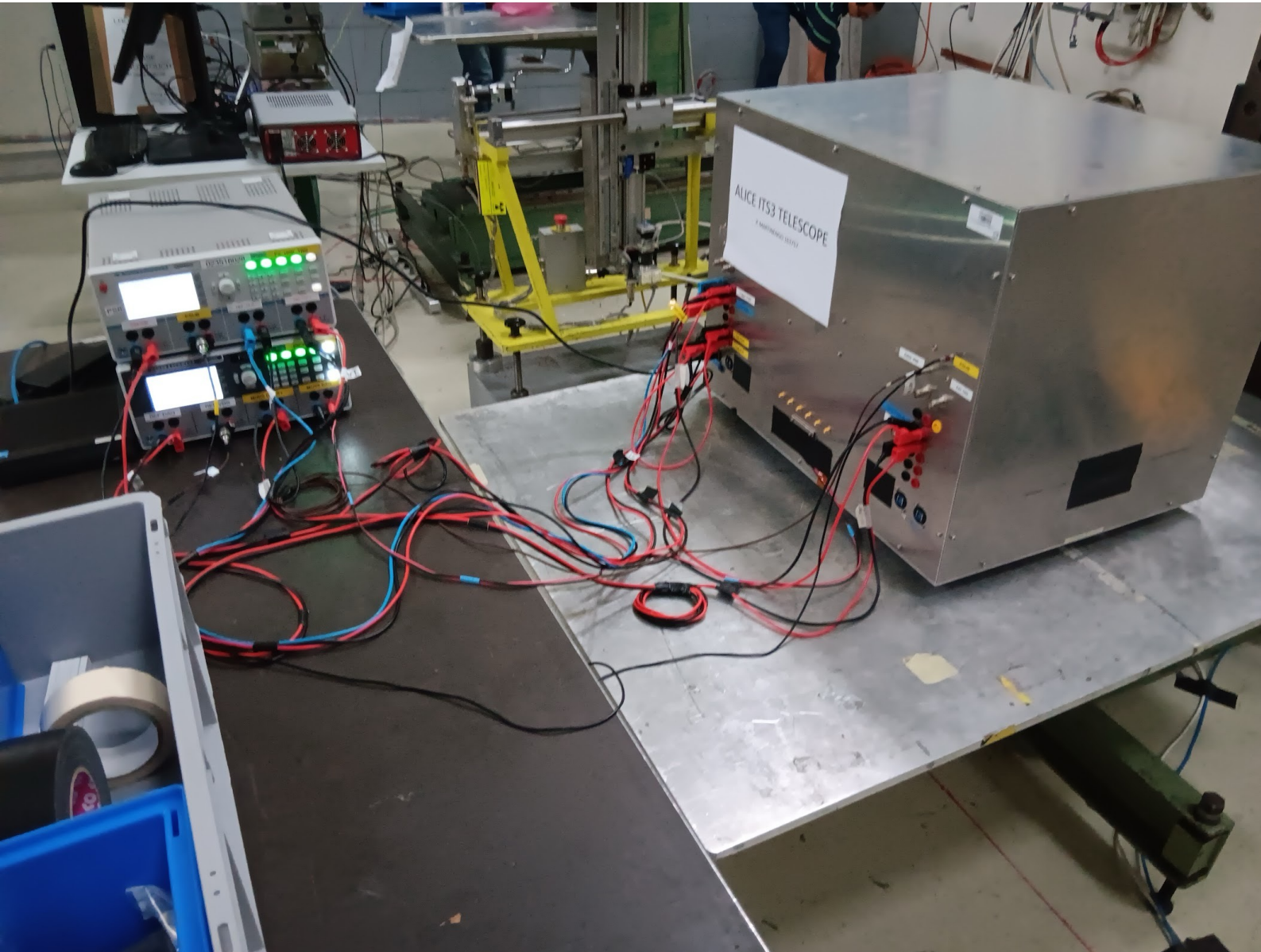


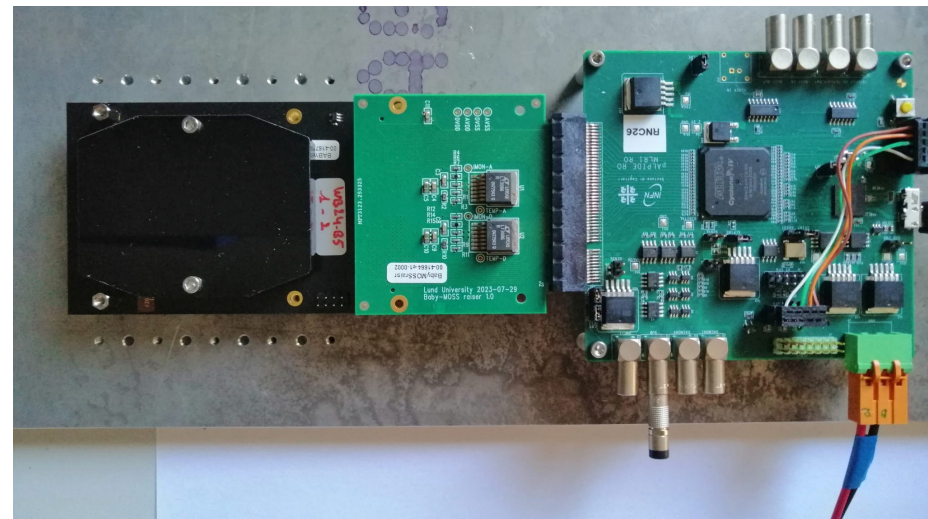
# ALICE ITS3 Beam Telescope





# Preparation for Tests at LBL

- 10 BabyMoss (on the way to LBL)
- 8 raiser boards (on the way to LBL)
- 8 DAQ boards (in hand from LBL production, tested by Miao Peng)
- Power supplies (in hand at LBL)
- DAQ computer (in hand at LBL, the DPTS one)
- 1 trigger board (borrowed from CERN and on the way to LBL)
- 2 PMTs and Trigger scintillators (borrowed from CERN and on the way to LBL, buying two for longer term usage)
- Telescope box (being fabricated by UIC machine shop)
- Update BabyMoss Firmware/Software using the Moss FW/SW framework, and EUDAQ2 telescope framework.



- Understand sensor behavior in the lab:
  - **Threshold scan, register scan, DAC scan, VSUB scan, temperature, ...**
- Quantify sensor performance: efficiency, fake rate, spatial resolution, cluster size (versus incident angle)
  - Test beam at CERN
    - 3/22-4/17 irradiated babyMOSS ( $10^{14}$  1MeV\* $n_{eq}/cm^2$ ) to find operational margin.
    - 5/8-5/14 irradiated babyMOSS ( $10^{13}$  1MeV\* $n_{eq}/cm^2$ ) to find operational margin.
  - **Test beam at Fermilab (tentative plan)**
    - **4/29-5/01: initial check at LBL**
    - **5/02-5/14: assemble the telescope at UIC/Fermilab, debug and commission**
    - **5/15-5/21: install the telescope, debug and commission**
    - **5/22-5/28: take data as primary user**
    - **6/19-6/25: add LGAD planes for timing reference, debug and commission**
    - **6/26-7/02: take data as primary user**
  - **Test beam at DESY 7/28-8/4 and JLab 11/2024 (TBD)**

# Test Plans for BabyMoss by LBL

- Quantify sensor single event effects
  - SEL tests with heavy ion beams at UCLouvain HIF Facility on March 5-6, 2024
  - SEU tests with proton beams at NPI Cyclotron on April 2-3, 2024
  - **SEL tests at BASE with heavy ions (date TBC)**
  - **SEU tests at UC Davis with protons (August 2024)**
- Sensor bending and assembly at LBL (TBD, major new efforts to undertake)
  - **Glue and wire-bond babyMOSS onto carrier boards for both learning and contribution to ITS3**
  - **Bend bare babyMOSS, wire-bonding onto FPC**

# BabyMOSS Layout

