

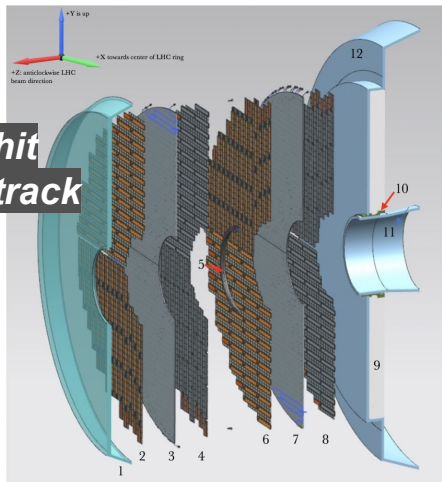
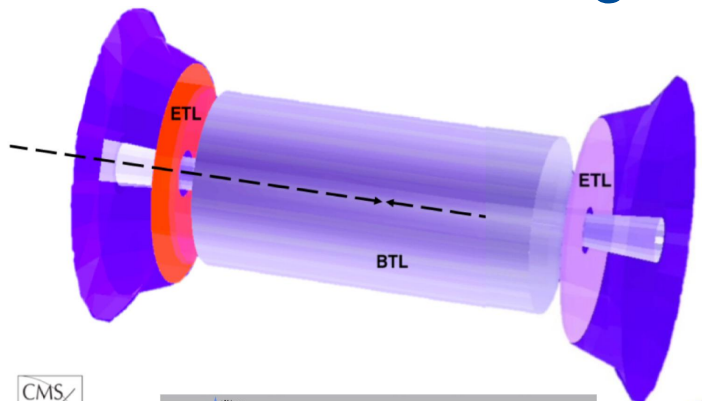
CMS MTD (ETROC) Testbeam at CERN SPS

Murtaza Safdari
PS/SPS User Meeting
August 15 2024

In partnership with ETROC Collaborators:



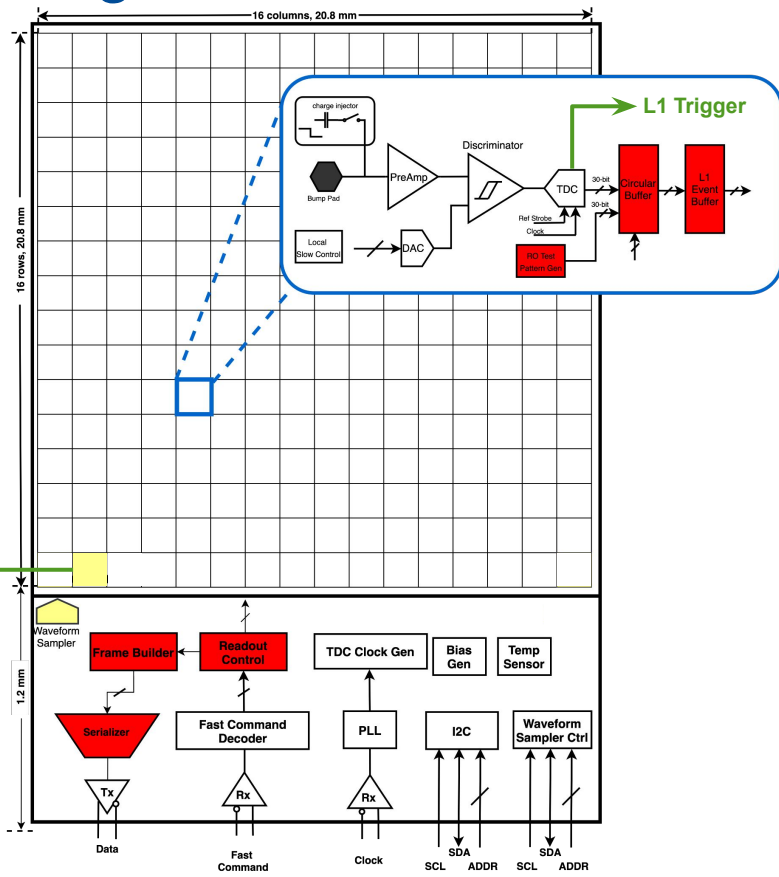
CMS Minimum Ionizing Particle Timing Detector for the HL-LHC

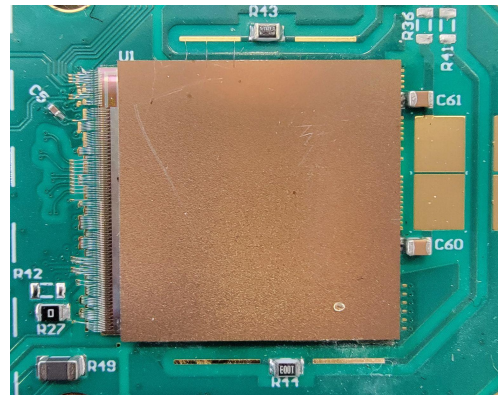
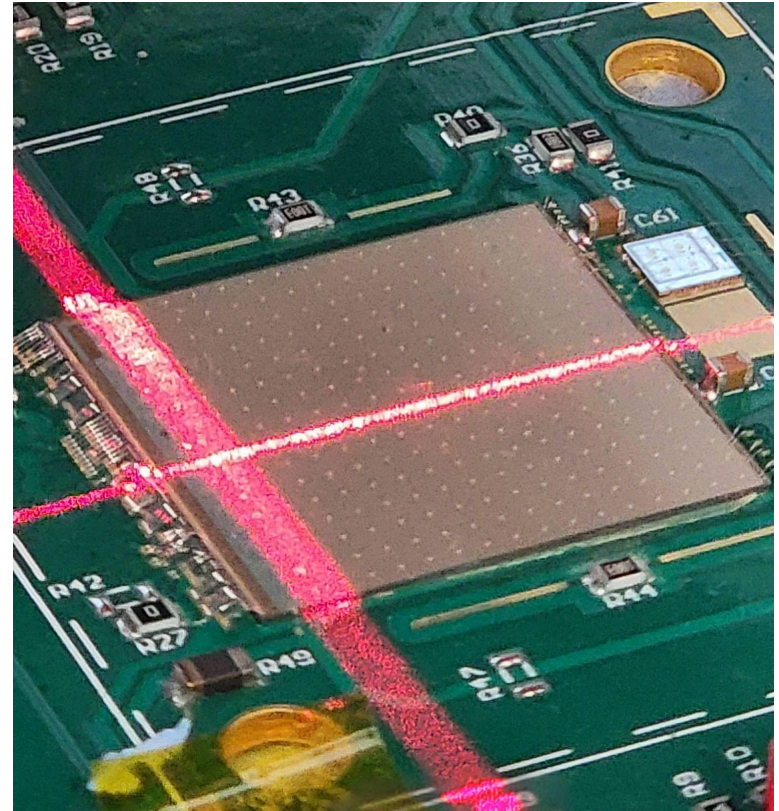
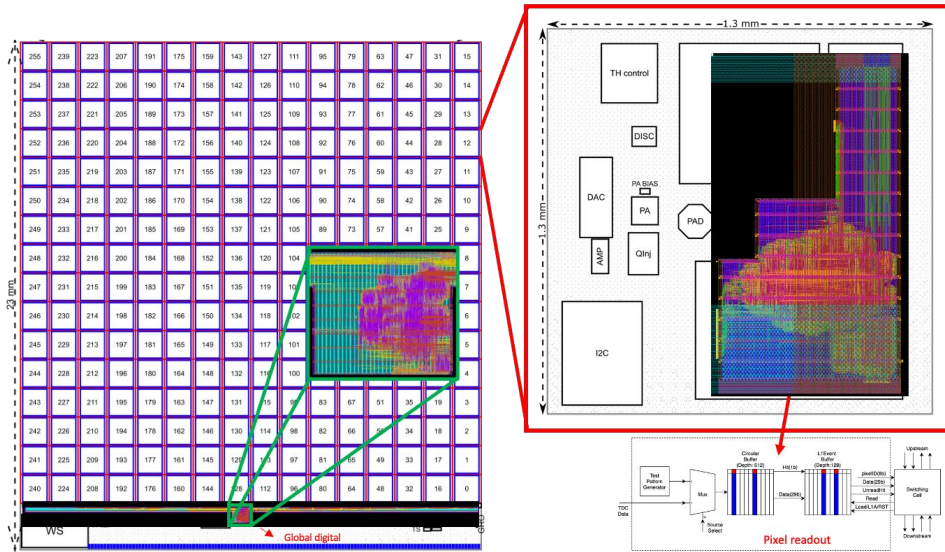


ETL
 50 ps / hit
 35 ps / track

- 1: ETL Thermal Screen
- 2: Disk 1, Face 1
- 3: Disk 1 Support Plate
- 4: Disk 1, Face 2
- 5: ETL Mounting Bracket
- 6: Disk 2, Face 1
- 7: Disk 2 Support Plate
- 8: Disk 2, Face 2
- 9: HGCal Neutron Moderator
- 10: ETL Support Cone
- 11: Support cone insulation
- 12: HGCal Thermal Screen

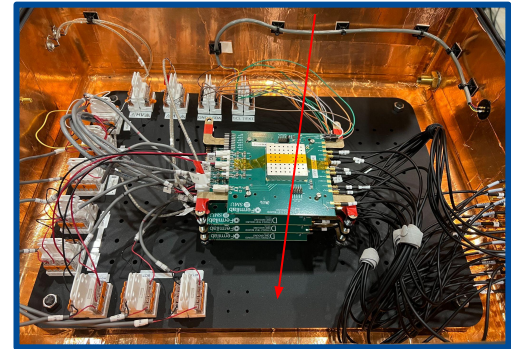
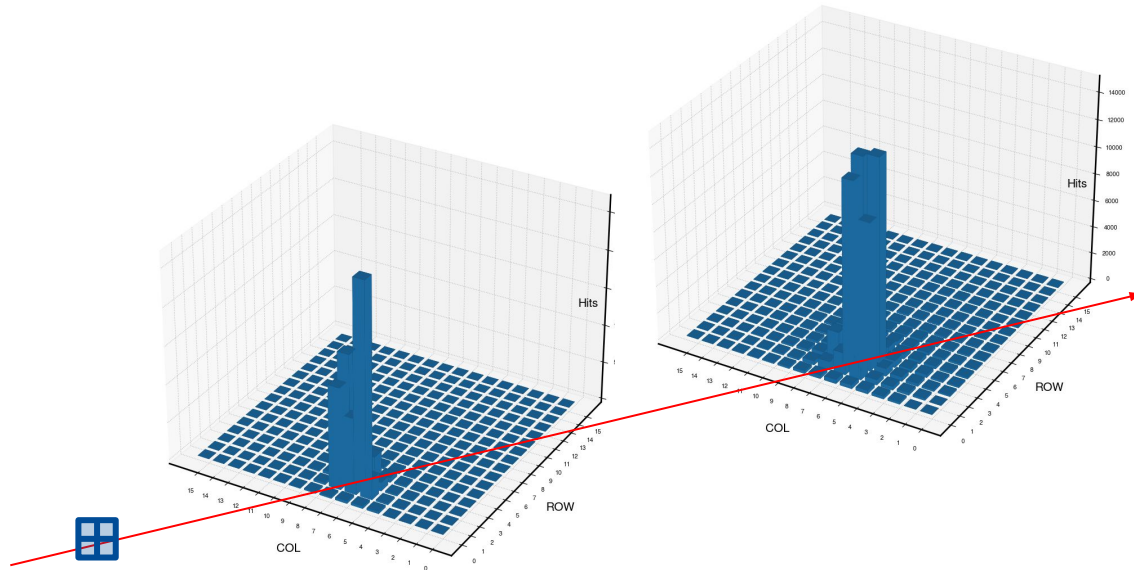
2.56 GSPPS
 Waveform Sampler
 (On-chip Oscilloscope)





Last time...

Example from CERN SPS Sep 2023 (120 GeV 1/3p + 2/3 π)



ETROC2 Telescope Setup at SPS Aug 2024

Goals:

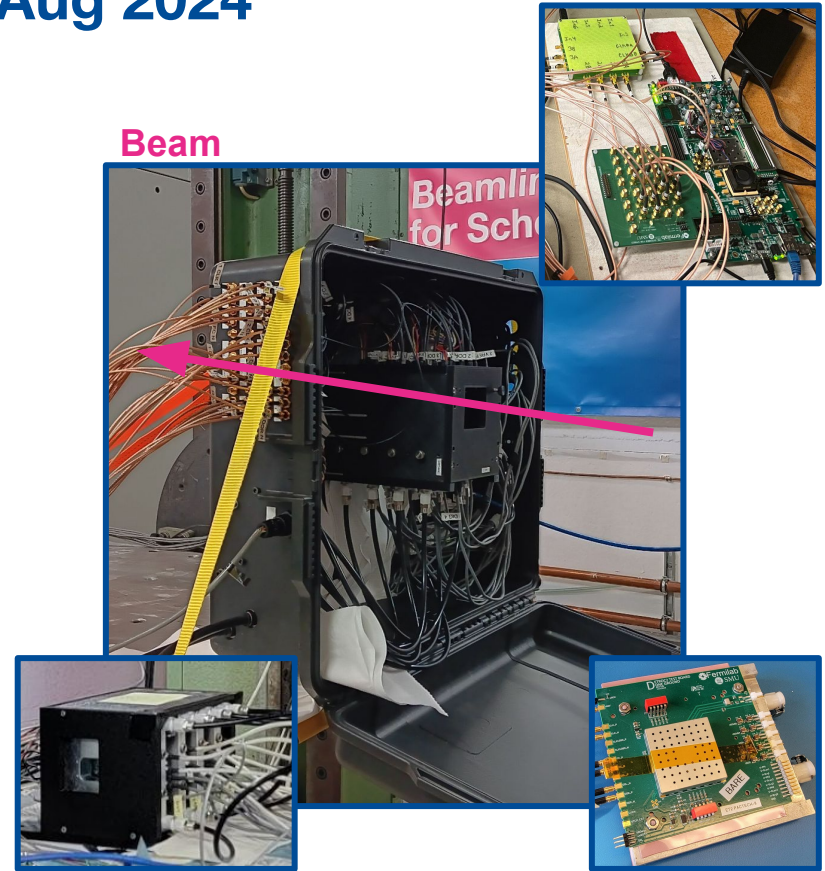
- Time resolution LGAD+ETROC2 w/ protons/pions

CERN Infrastructure:

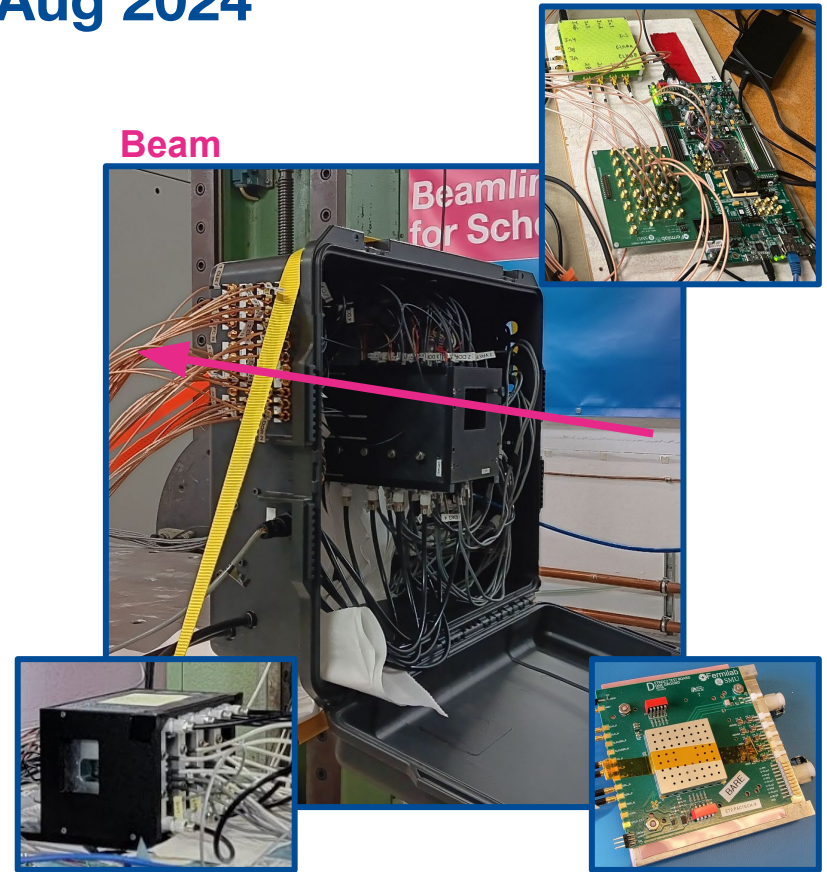
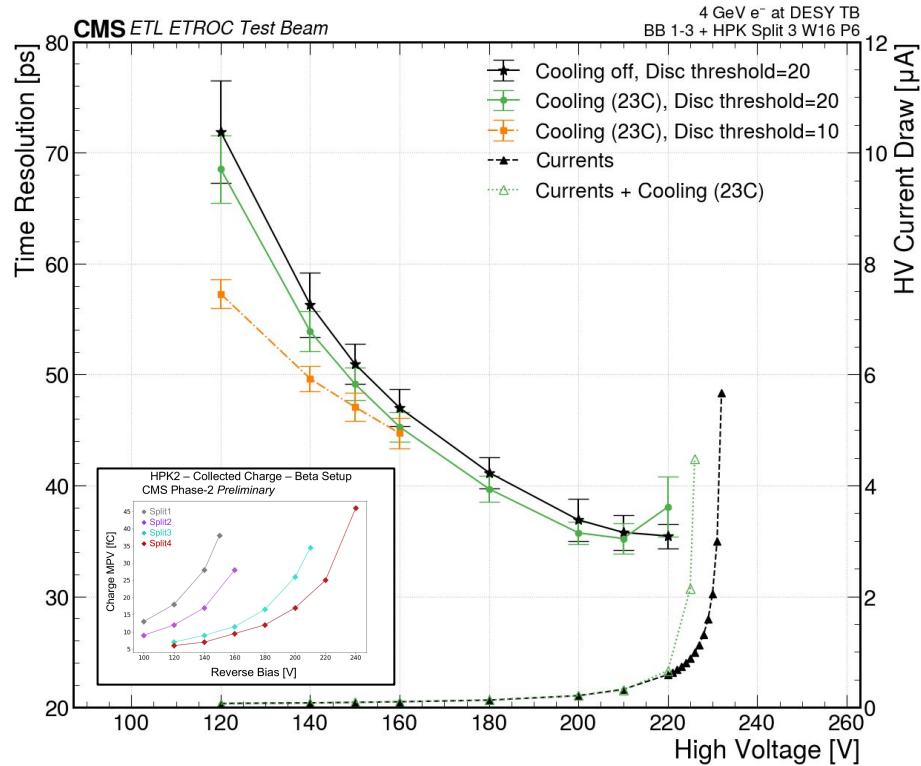
- N₂ flow to remove humidity and heat
- Chiller
- Movable table

Weeks Assigned

1 week 14.08-21.08 (*parasitic PPE 156*)



ETROC2 Telescope Setup at SPS Aug 2024



ETROC2 Single Board Setup at SPS Aug 2024

Goals:

- Study bump bonding yield in new LGAD+ETROC2 assemblies

CERN Infrastructure:

- PI Stage in AIDA telescope

Weeks Assigned

1 week 14.08-21.08 (*parasitic PPE 156*)

Beam

