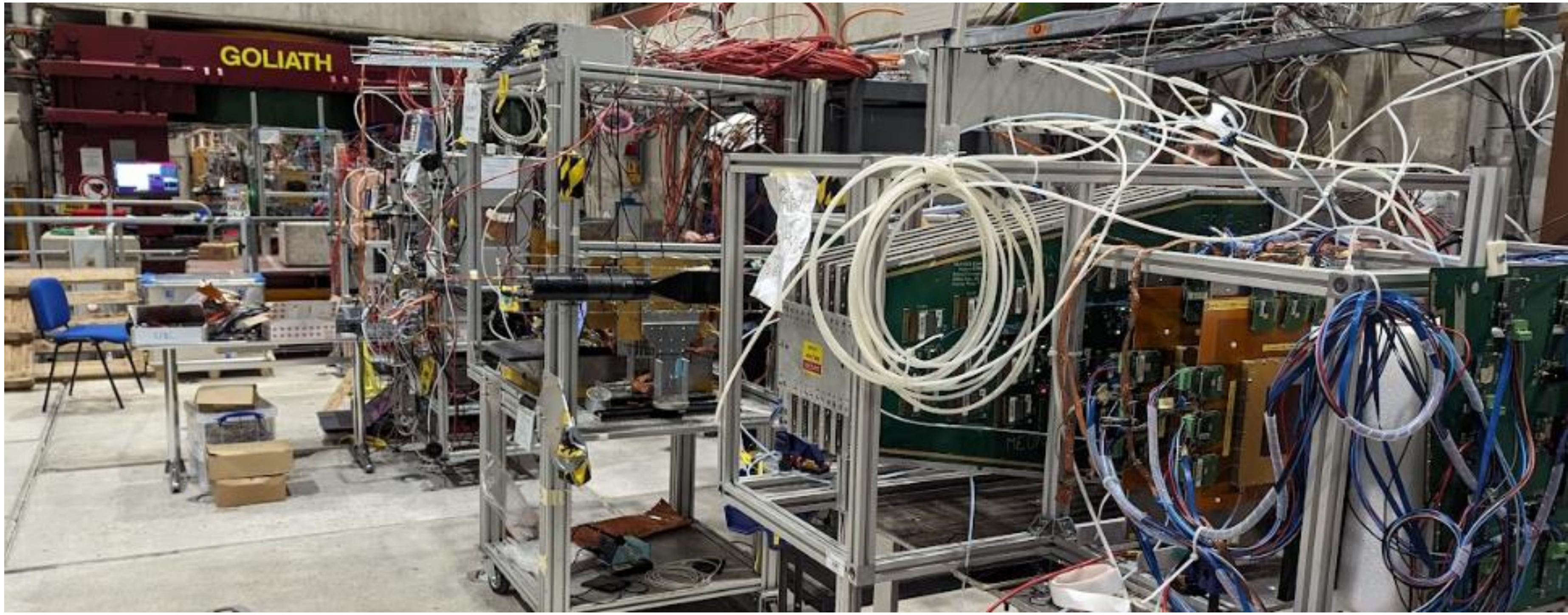
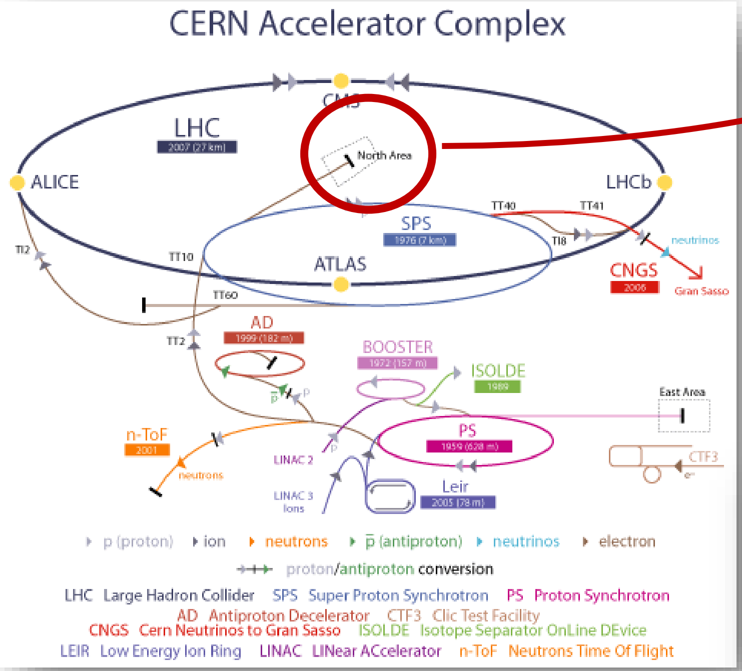
DRD1 test beam campaign 2024

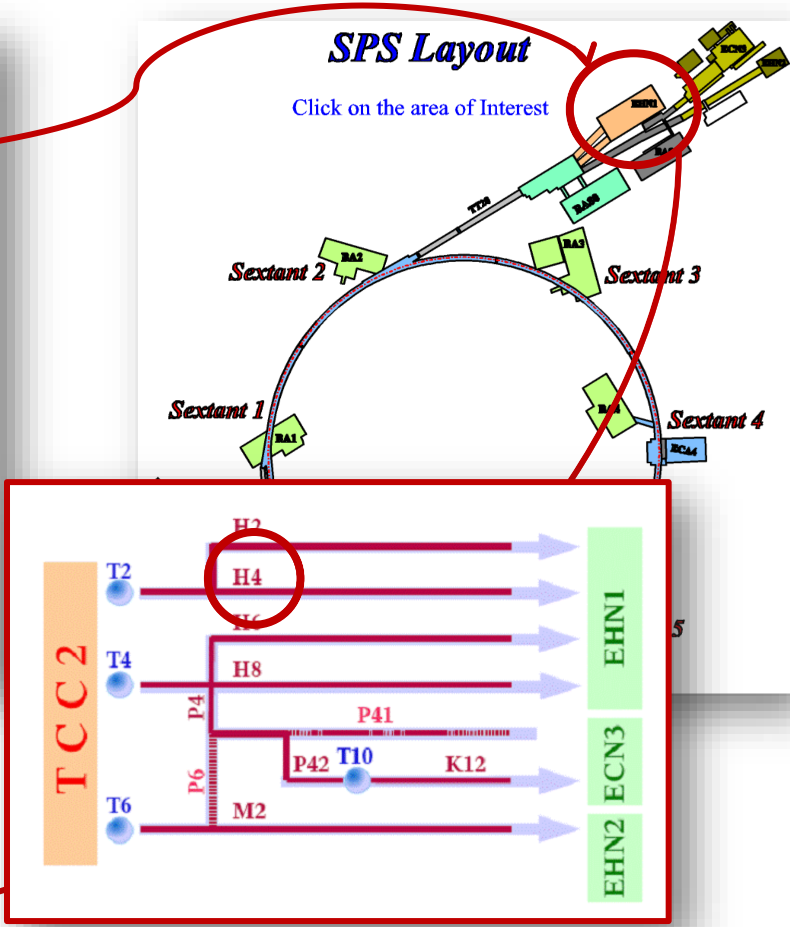
Yorgos, Karl(, Eraldo)



TB1: 10 – 24 April 2024
TB2: 26 June – 10 july 2024
TB3: 18 Sept. – 2 Oct. 2024

Location H4/PPE134





- **WG7 is for Common test facilities (**https://drd1.web.cern.ch/activities-wg7**)**
  - **PPE134 as a possible common test beam facility**
  - **GIF++ as a possible common irradiation facility**

https://sba.web.cern.ch/sba/

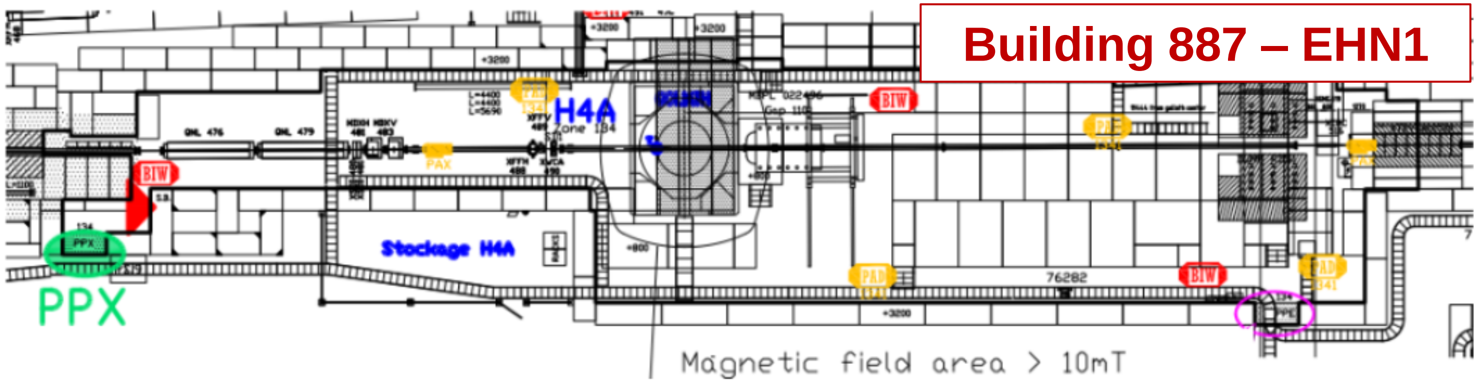


Fig.2: CERN North Area SPS Extraction line, H4 Beam line (PPE134/EHN1)

Common Test Beam at the CERN SPS/NA: CERN's PS and SPS can provide a variety of particle species with a wide momentum range. The collaboration plans to request common test beam time periods at the SPS. The H4/PPE134 experimental area in EHN1 is identified as the best location given the available beams, the space and the presence of a 1.5T Magnet with a large enough opening. The area has been used in the past by the RD51 Collaboration for regular common test beam campaigns.

DRD1 Test Beam Campaigns @ H4/SPS

Research to advance technological development of Gaseous Detectors

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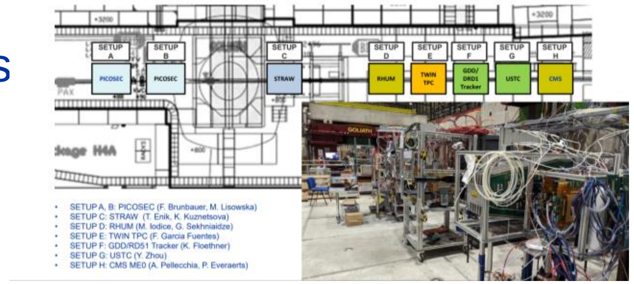
Generic and Application driven R&D
Muon/Tracking: GEM, Micromegas, uRWELL, cylindrical/planar uRGroove, TPC, Straw
Timing: PICOSEC micromegas/uRWELL
Calorimetry: MPGD DHCAL

Project Driven R&D & Commissioning
HL-LHC: CMS ME0
Twin TPC for MIXE
AMBER triple GEM (G4G)

FE electronics and DAQ
VMM3a for TPC, Tiger, Mu2e, ASD. GEMROC, SAMPIC

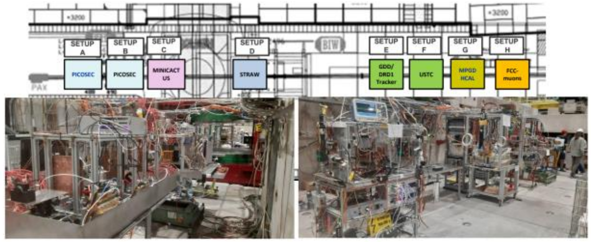
2024 SPS Test Beam Campaign
(to give you a better feeling of the use of the beam and what we do)

8 setups



https://indico.cern.ch/event/1409215/contributions/5922965/subcontributions/479395/attachments/2843563/4973590/DRD1-April24-TestBeam-H4-Summary-Updated%20(2).pdf

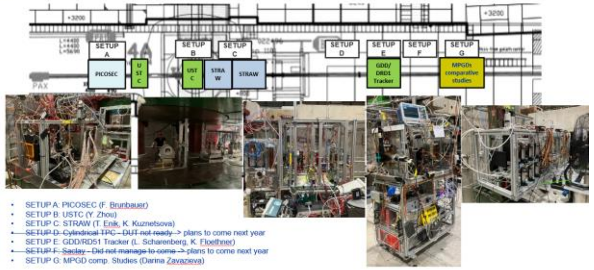
8 setups



https://indico.cern.ch/event/1436361/contributions/6044369/subcontributions/492820/attachments/2894558/5074788/DRD1-June-July24-TestBeam-H4-Summary-withStraws.pdf

5 setups

BEAM H4, PPE134 – INSTALLATION (DRD1, Sept 18 – Oct 2)



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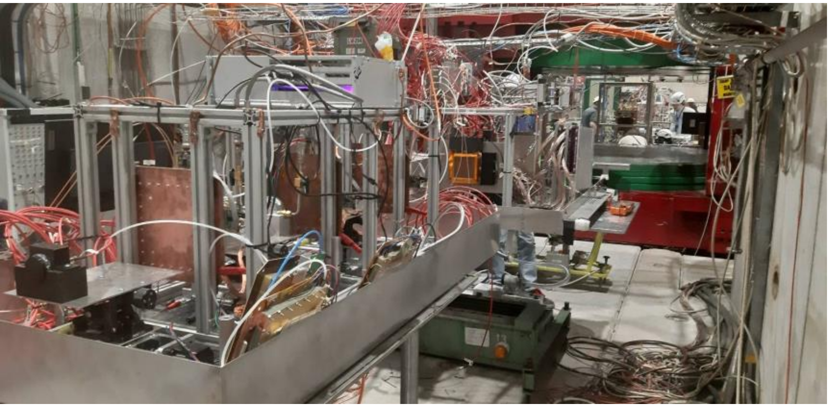
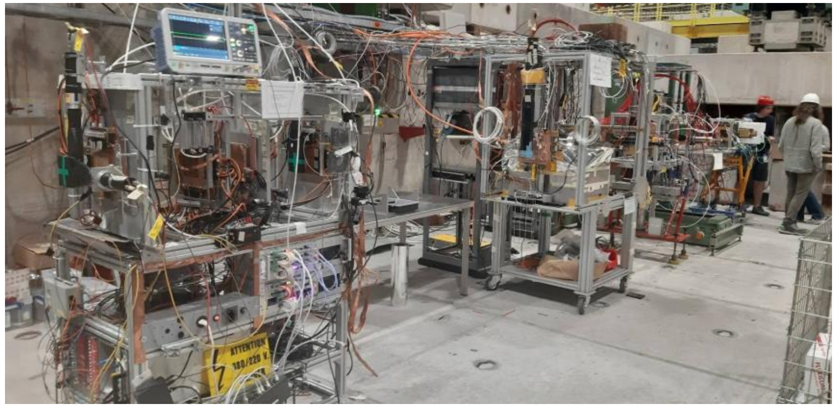
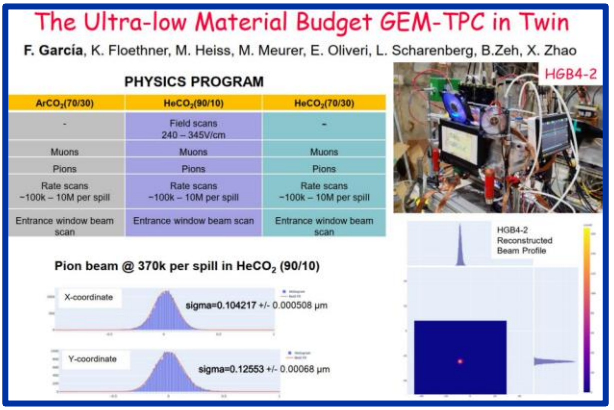
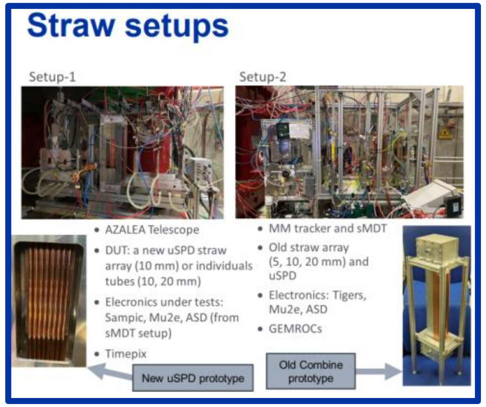
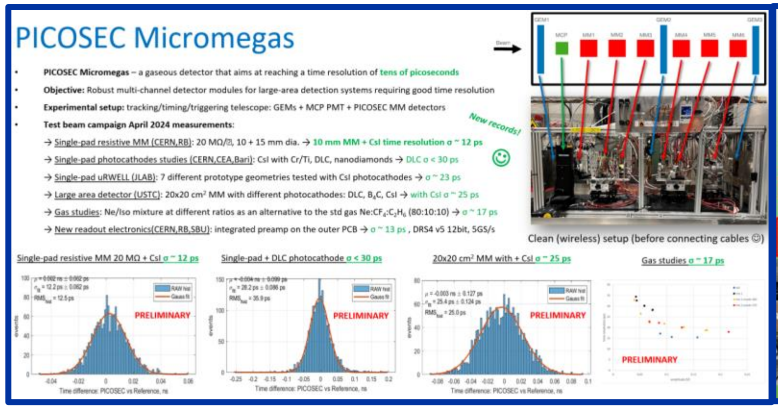


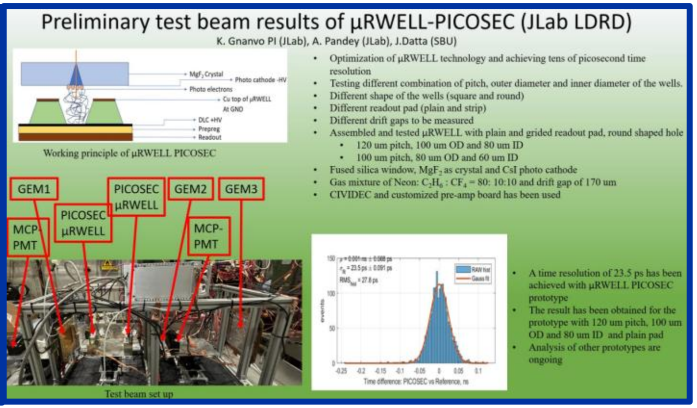


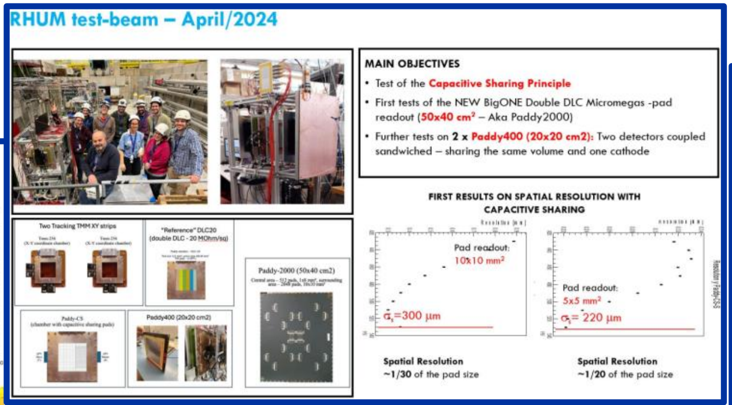
Participating Groups 2024

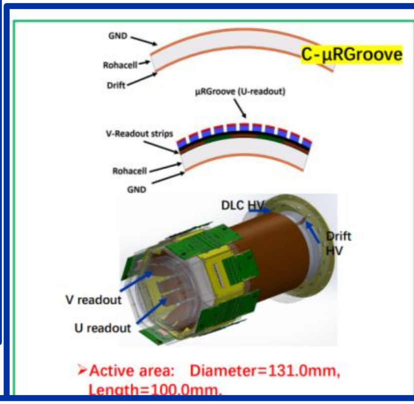


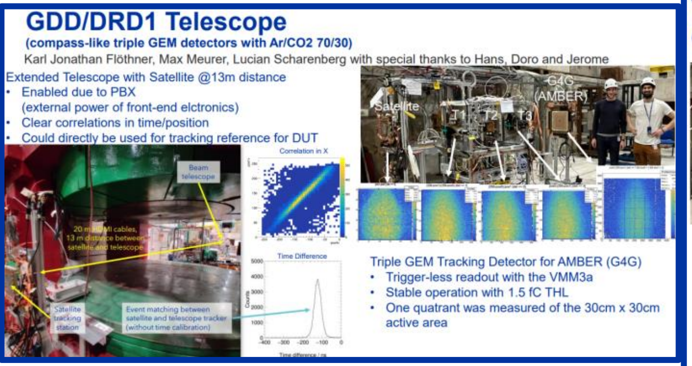


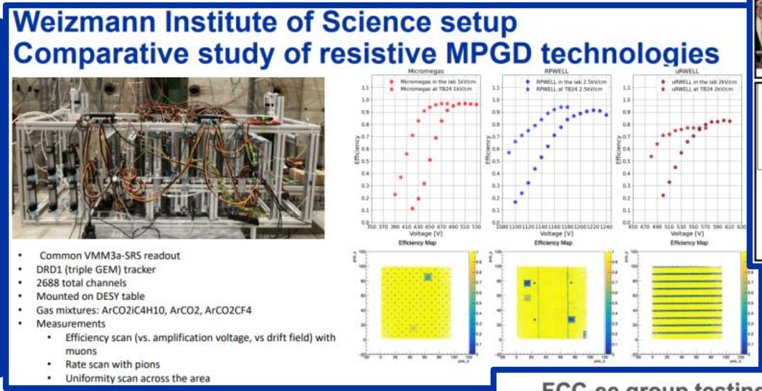


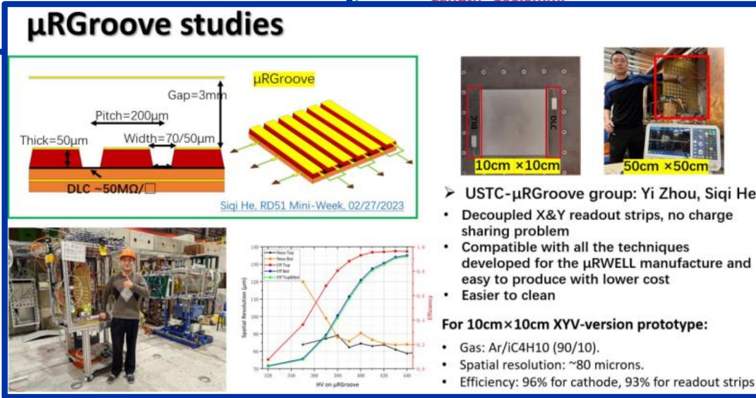


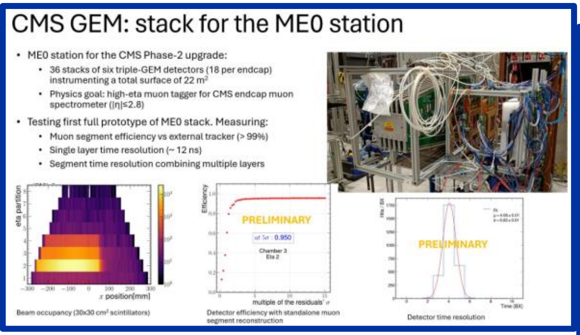


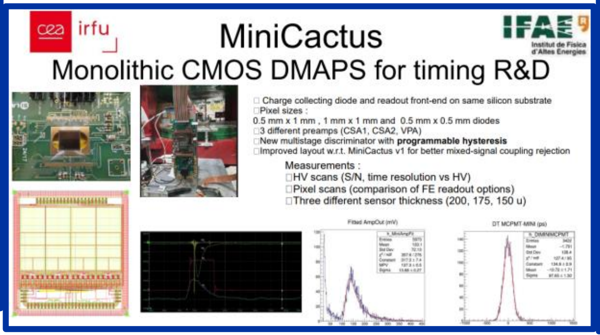


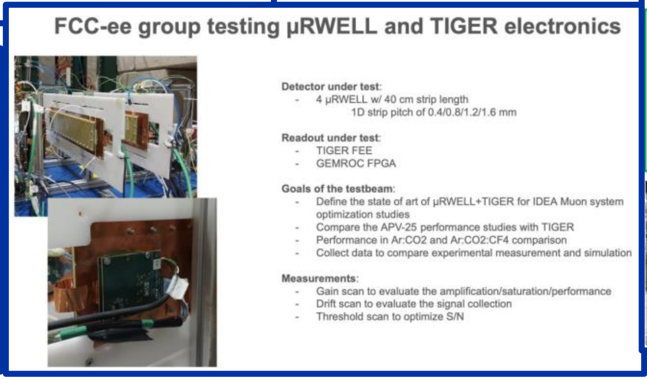












DRD1 H4 – Short Feedback from the 2024 run

Our Feedback to the Colleagues from the Beams Department

Aimed vs collected statistics (if applicable)

- In 2024 we had three beam periods with excellent beam – all setups profited and finished there physics program (apart from losses caused by the setups – no losses due to beam operation)

Highlights & Major issues faced **(we had excellent shared BBQs with GIF)**

- Remarkable support from North Area teams – Installation and dismounting is really demanding
- **Support from Liaison physicists** outstanding as always
- No problems with muon beam purity and no problems by changing beam files (in the past, collimators got stuck from time to time; since the addition of XCIO.022.450 we did not face any issues with that)
- No major issues faced during 2024 because of a maximal setup count of 8 at a time
- For maximum Muon Rate one has to pay attention to PAXNA14404 (reduces to 15uSv/h in case of GIF access with three spills this can be exceeded).
  - ➢ Intermidiate solution found with GIF++ (XCSH.022.068 can be adjusted) --> could be automated/avoided?

Desiderata for 2025

- More setups/groups are expected to participate due to the now larger collaboration (DRD1 >> RD51)
  - We expect to face problems which occurred in the past with 8+ setups because of the overall higher demands (# of power (220V/50Hz) sockets, # of Outlets/Available IPs, # of Remotely controllable tables, # of installed CAT7 cables)
  - Upgrade of gas system is planned before next beam time
    - +10 gas lines (+10 return)
    - Possibility of shorter lines for flammable gas (technically possible - to be checked with safety)
- As early as possible information about change in beam conditions (e.g. planned LHC fillings or other reductions/losses in beam) -> lets us schedule access more efficient
- (foot and drinks in the snack machine in EHN1 also on the weekend – machines sometimes empty or card reader does not work)

we hope for more colleagues from "non-MPGD" groups

DRD1 test beam campaign 2025

Requested/"Expected" Beam Time

TB1: 2 weeks in April 2025

TB2: 2 weeks in June/July 2025

TB3: 2 weeks in Sept./Oct. 2025

Expectations for 2025

- Upgrade of Gas System (+10 lines)
- 8+ groups per TB
  (hopefully more "non"-MPGD groups)

First steps if you want to join the campaign in 2025:

- Subscribe to the WG7 mailing list: https://drd1.web.cern.ch/activities-wg7
- Contact us as soon as possible if you need help/have questions about preperations:
  Yorgos.Tsipolitis@cern.ch or karl.jonathan.floethner@cern.ch or DRD1-WG7-convenors@cern.ch

Generic Test-Beam BBQ Picture

DRD1

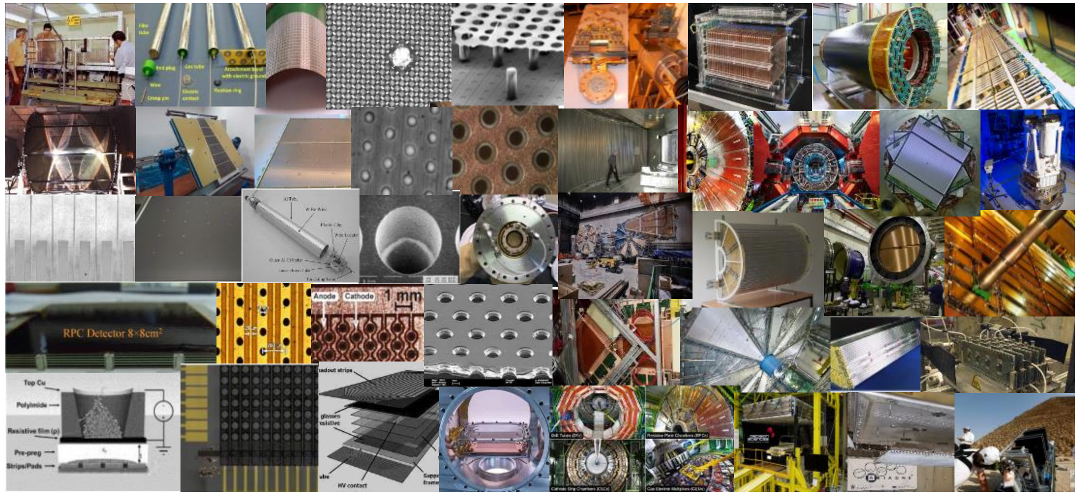
Gaseous Detector Technologies

Thanks for your Attention and see you next Year!

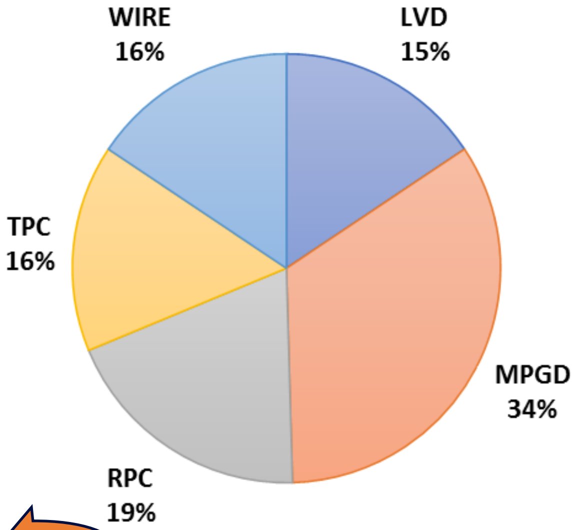
DRD1: A very large and diversified set of technologies and solution, a very large and diversified community

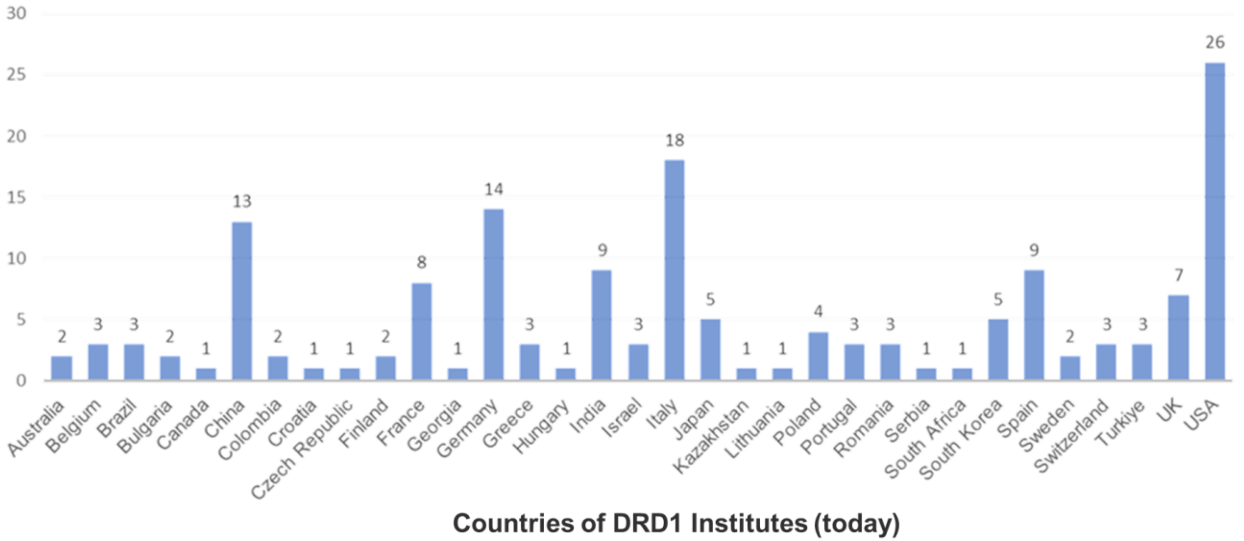
Courtesy of Eraldo

https://drd1.web.cern.ch/



- More than 160 Institutes
- More than 30 Countries
- More than 700 members
- 5 Industrial, Semi-Industrial and Research Foundations





DRD1

RD51