ECFA

European Strategy Update

WG3: test beam organization

G. Gaudio - INFN Pavia

WG3 pillars

- Test beam dedicated area
  - Resource optimization
  - Both HW and SW setting up
  - Starting from CERN NA
    - discussion starting with SPS coordinator
    - extend to other facilities?

- Test request organization
  - coordinating requests among different projects and different facilities
    - => find needed time for anyone
    - exploit synergies
    - combined ECAL+HCAL performance

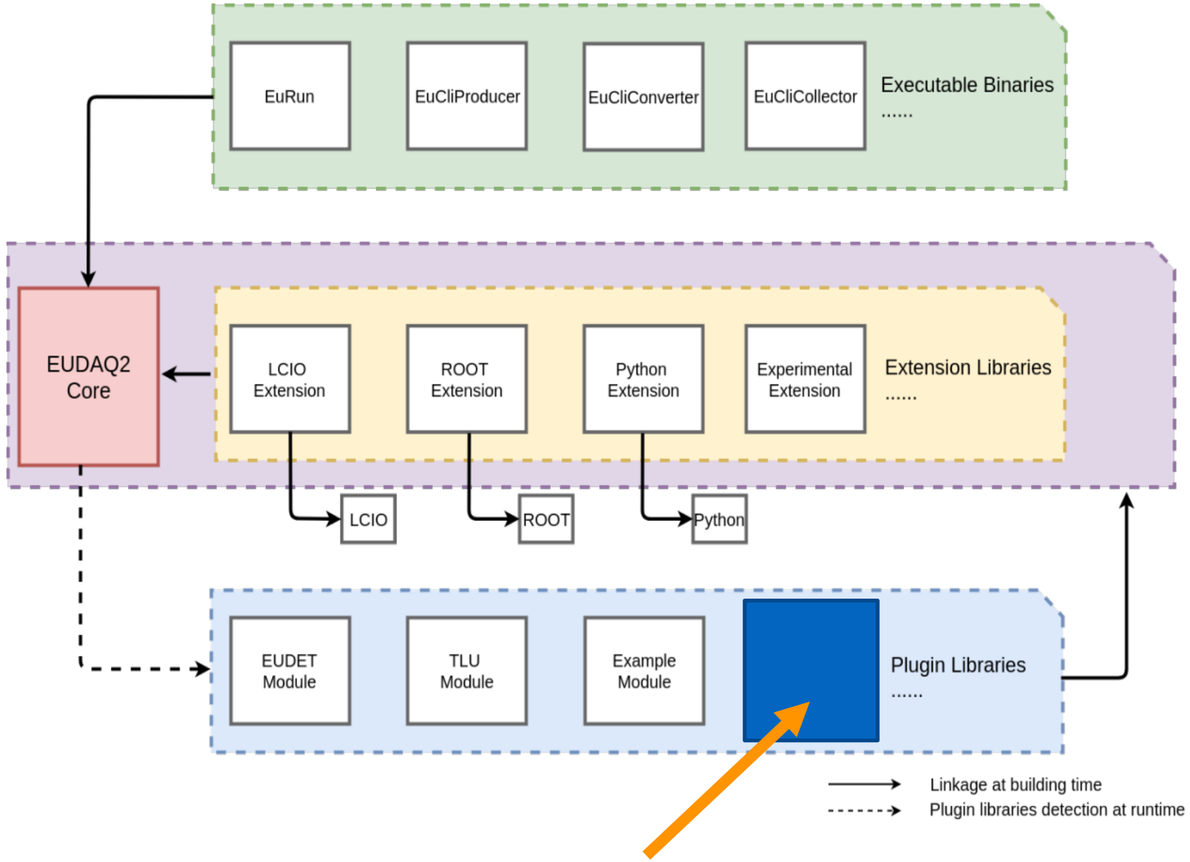
Testbeam Facilities requirements: HW setup

- A large energy range from a few GeV to hundreds of GeV, electrons, pions, muons + other particles
- Enough space to host a ~1 m^3 device
- Moving tables that can carry devices of several tons
- Beam telescope to determine impact point and reference time
- Threshold Cherenkov counters to distinguish particle species
- Magnets to measure the performance in magnetic fields

ECFA Testbeam Facilities requirements: Software setup

European Strategy Update

- Beam line + Calo simulation
  - Connection with GeantVal
- Beam condition readout
- Data Acquisition
  - DAQ of the “service” detector already in place for all
  - DAQ of calorimeter
    - Connection with WP4
    - Connection with WG1 (data format and data preservation)
  - EUDAQ based?



PUT your calorimeter library here!

Bringing WG3 to life

- Mixed top-down / bottom-up approach
  - survey the project needs
  - identify coordinator(s) to bootstrap the WG setting up
  - kick-off meeting soon

ECFA Testbeam 2025

7 requests connected to DRD6 @ CERN

WP/task	Task	Beam	Location	Duration (d)
1.3.2	MPGDCAL	pion	PS	14
3.1.1	HGCCAL	e, pion, muon	PS - SPS (H2/H4)	14 + 7
3.1.2	MAXICC	high purity e	SPS (H6)	14
3.1.3	CRILIN	high purity e	SPS (H2/H4)	7 + 7
3.1.4	OREO	high purity e, mixed particles	SPS (H2/H4)	14
3.2.3	RADICAL	high purity e	SPS (H6)	7
3.3.1	DRCal	e, pion, muon	SPS (H8)	7+7+14

DESY beam request open until Nov. 9th

Other facility “census”

ECFA Request for next years

- Revise timeline of testbeam request from input proposal
- Understanding beam facility availability

ECFA Input proposals - “Testbeam schedule”

- Input-proposals reveal (relatively) little need at the beginning
  - Start with prototypes that are either existing or currently under construction
  - Benefitting from AIDAinnova and EUROLABS funding
- Relatively high density of beam tests with new (large scale) prototypes after 2025
- The large scale beam tests will be preceded by smaller scale beam tests
  - Individual layers smaller systems before “mass production”

DRD Calo – Collaboration Meeting April 2024 4

ECFA Today's agenda

European Strategy Update

13:45 → 15:15 **Testbeam and tools: Testbeams and tools** 503/1-001 - Council Chamber

Conveners: Gabriella Gaudio (Dipartimento di Fisica Nucleare e Teorica), Gabriella Gaudio (INFN-Pavia)

13:45 **Introduction** 10m

Speaker: Gabriella Gaudio (INFN-Pavia)

13:55 **Test beam availability at cern** 20m

Speaker: Martin R. Jaekel (CERN)

14:15 **Experience from recent TB** 1h

Test-beam measurements of instrumented sensor planes for a higly compact and granular electromagnetic calorimeter 12m

Speaker: Michal Elad

Experience with recent beam tests at CERN and DESY 12m

Speaker: Yong Liu (Institute of High Energy Physics, Chinese Academy of Sciences)

RadiCAL experience in H6 12m

Speaker: James William Wetzel (University of Iowa (US))

OREO 2024 testbeam experience 12m

Speaker: Alessia Selmi (Universita & INFN, Milano-Bicocca (IT))

Dual Readout calorimeter testbeam experience 12m

Speaker: Seo Yun Jang (Yonsei University (KR))