

IFIC plans for analysis

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Boundary conditions

▷ Who? **Melissa & Shan**

- + Adrian

▷ **Shan** is the master of the **telescope**.

- Michal, Nofar in the process

▷ We made an application for a project for Melissa that will pay a **stay in Krakow** in this autumn

- We will know the **result** of the **application** in a couple of weeks
- Perfect timing to become **2nd expert on the raw-data**

▷ In my opinion/experience: we **still need to dissect the data** to fully understand if there are bugs in the conversion/zero suppression etc.

▷ At IFIC we had a meeting to discuss the first steps → next slides



First : look at MIP data and Data Quality

▷ Goals: calibrate the detector at MIP level (including noise) and understand the data (calo and telescope)

▷ **Melissa** will start to look at **zero-supressed data in ROOT FILES**

- Simple selection – i.e. only the same channel in all layers (or in a large fraction of layers)
- No telescope.
- Learn how to use and dissect the converter tools.
- **Move to raw data (no zero supressed)** → Implementing new **noise subtraction** files for the FEB (made in Krakow) - CONVERT TO ROOT
- Melissa-Dawid

▷ **Shan** will start to look at **zero-supressed data and telescope data**

- Test alignment with one layer, test merging of two files. Debug telescope data.
- Learn how to use the Hough Transform and modern tools of Michal
- Shan-Michal

▷ **Shan & Melissa**

- Finalize the study using the raw-data + telescope in a debugged format. Proper selection and alignment.



Longer term: calorimetry – start after Warsaw

▷ We are interested in **Melissa** doing the “**classic**” calorimeter parameters:

- Moliere radius, shower profiles, energy calibration...
- And not so classic: position resolution, angular resolution but using “**traditional**” algorithms – to set the ground

▷ **Shan** is interested in using **ML** for clustering and position/direction measurement

- **Hough Transform, etc...**

▷ **Shan & Melissa** – simulation vs data comparisons

- We want to use the most “Key4HEP” tools. To be **coordinated with Bucharest et al**
- **To be discussed in Warsaw?**

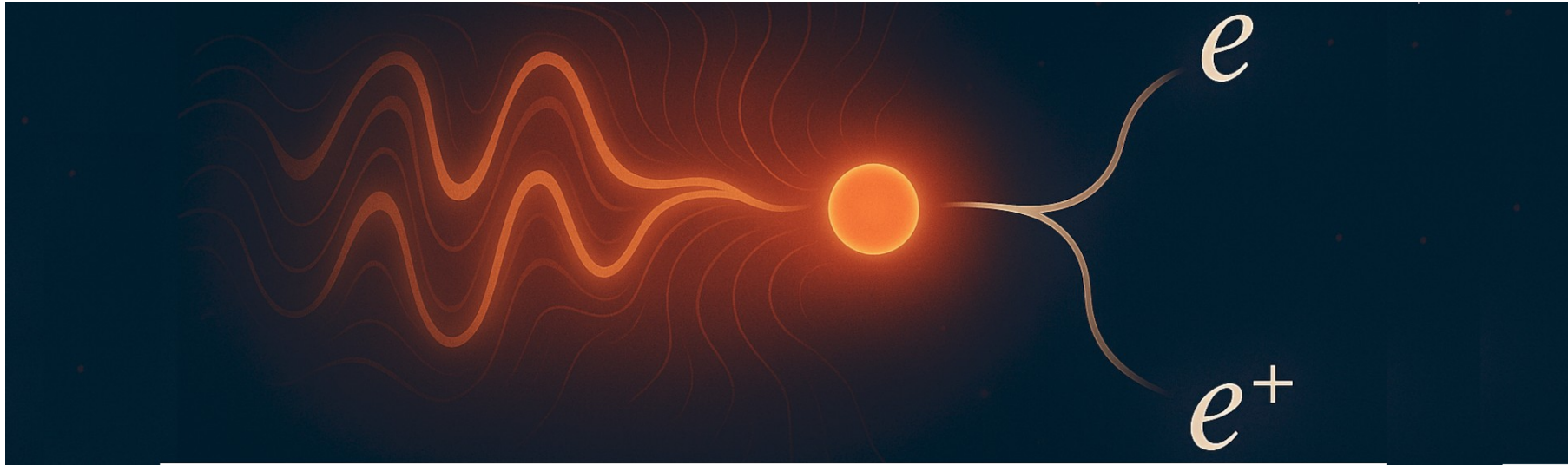
▷ **Adrian:** is interested in knowing if there are **differences between sensors** glued with different types of glue. Noise studies, etc. (not discussed today)



- ▷ We would need some **tools** that tell us quickly the **validity of a data** file and the statistics of it
 - ▷ We would need an **a tool that quickly compares raw and root files.**
 - ▷ We would need an **event display (for root files)**
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- ▷ I find **specially useful** when we have **hands-on meetings** where all students/postdocs work together. Could we organize something like that for **Warsaw?**
 - **Weekly (?) meetings of experts**
 - **Monthly (?) meetings with everyone?**

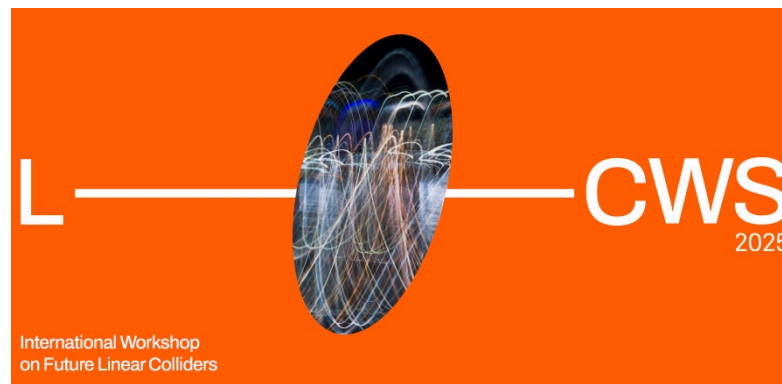


EXTRA : the beam test in ALTANA webpage



**IFIC and its international partners meet a milestone in
detector instrumentation for LUXE and beyond**

<https://aitanatop.ific.uv.es/aitanatop/milestone-luxe-ecalp/>



- ▷ Last year we submitted “coordinated” abstracts (talk given by Yan) and technical-individual abstracts (Mihai, Filip, me).
- ▷ This year, I have already submitted two abstracts:
 - One for a poster: to show our clean room capabilities “The setting up of the TARDIS-Lab at IFIC for high-granular calorimetry R&D”
 - One for a talk, on simulation studies done by Shan et al for silicon-ecals for NPOD “Adapting High Granular and compact silicon calorimeters concepts from Higgs Factories to Dark Matter experiments”
- ▷ **Deadline: 18th July** (likely to be extended...)
- ▷ **Fun Fact:** the first abstract of LCWS2025 is from LUXE :)

<https://agenda.linearcollider.org/event/10594>

