# **WP2: Analysis Summary**

G. Dho

08/02/2024

### Organisation

Coordinator: Giorgio Dho (INFN LNF)

Local coordinators: Davide Pinci (Roma1) Elisabetta Baracchini (GSSI)

Rafael Nobrega (UFJF)

- Meeting every week discussing general analysis and technical aspects
  - Find here the calendar with the meeting scheduled: <u>https://agenda.infn.it/category/1149/</u>
  - Find here the history of the mailing list with the log of the meetings: https://lists.infn.it/sympa/arc/cygno-reconstruction/2024-02/
  - Find here the full analysis task spreadsheet:

https://docs.google.com/spreadsheets/d/1-JIsF86o7vRVyHFi\_Dv\_O2VqHT\_LWyoYJykugbfUaVM/edit#gid=0

### Reco code

- Treatment of the noise via Cythonisation completed (faster reconstruction)
- Parameters monitoring for historisation completed (soon, maybe already now, a dedicated Grafana monitor will be up and running https://grafana.cygno.cloud.infn.it/d/cc457ee9-3132-4cbb-96c3-74567cc9bd46/params?orgId=1)
- Environment variables fully integrated
- Rerun of Run3 and early Run4 completed

#### NEXT

- PMT analysis integration (should happen soon)
- Update of autoreco to be run not only for LIME, but also for GIN and MANGO
- Cleaning
- Rotation fix

# Some highlights of the week

### Run1-2-3 Data MC comparison (F. Di Giambattista)

- Data after the reRun of Run3
- Cuts applied on data to remove non simulated tracks



- Promising results
- Large relative contamination in Run3 (also confirmed by alpha amount)

# **Absorption Length (P. Meloni)**

- Data after the reRun of Run3 and some new data of Run4
- Combination of saturation and absorption of drifting electrons shape the light output of LIME not constantly in time ٠



Δ

calibration with integral @ step1 around ~7000 counts (December 2023)

Are contaminants modifying the absorption length?

# **QUEST vs Fusion (D. Fiorina)**

• Exploiting some <sup>55</sup>Fe data taken with both cameras, a performance comparison can be carried out



- Noisy bands of sensor almost less than 10 rows
- Less noisy
- Less reconstructed clusters
- More to come

### Other

• Study of the pedestal behaviour with time (D. Fiorina)



Rejection factor (A. Prajapati)



LY30 (variable used to calibrate the response of the detector)
variation with respect to <sup>55</sup>Fe calibration data (R. Antonietti)



• Initial inputs for an estimation of LIME DM limits

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