

# CYGNO simulation plans

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CYGNO simulation meeting

# Simulation progress of last months

- LIME background simulations
  - finalized shielding design for LIME underground
  - completed background simulations (energy spectrum + hits information)
  - finalized plans for LIME measurements and MC validation
- CYGNO background simulations and ER simulations
  - full simulation for CYGNO 1m<sup>3</sup>, background for CYGNO\_04 estimated from scaling
- NR simulations
  - completed framework ready using SRIM
  - improved QF simulation
- Digitization
  - introduced saturation
  - done many data/MC comparison and found the best set of parameters to reproduce data
  - improved/optimized the code

# Plans & to do

- LIME background simulations
  - to be validated with LIME data underground
  - full simulation of tracks (including hits info in the output file + digitization)
- CYGNO background simulations and ER simulations
  - to do full background simulation using latest design
- NR simulations
  - produce high statistic samples to study CYGNO performance
  - data/MC comparison as soon as available (AmBe, ?)
- Digitization
  - produce high statistic samples to study CYGNO performance
- PMT simulations
  - finalize PMT simulations and integrate in digitization code

Flaminia + ?

Giulia + ?

Flaminia + Atul + ?

Samuele + ?

Mariana, Rafael + ?

**...new people welcome!**

# INFN Cloud

- We should move simulation workflow to INFN cloud
  - in principle easier to upgrade resources (cpu, storage)
- Geant4 simulation tested on cloud and working
- Condor queues tested and working
- Digitization not yet tested but in principle possible
- Reconstruction tested...

The best is to do all the steps (simulation+analysis) on the cloud