

NEWS

CYGNO SETUP

- CYGNO 1 m³ aims at being the best compromise between money, time and person-power to evaluate the performance in the Dark Matter search for a larger experiment based on same technology;
- It is therefore necessary to build a cubic meter apparatus with a background rate coming from external contributions lower to 10 times CYGNO rejection factor;
- Assuming it to be 10³, necessary shielding is assured by a scheme:

Plexiglass/Cu/H₂O:2/5/200

In order to study the background we'll proceed in a modular way. We'll build a first shield according to scheme: 2/5/100, already structure to be expandable to final design by adding a second water layer.

CYGNO PLANS

Before starting with design and material inquiries, preliminary steps are

- GSSI people will evaluate performance with a remnant background of 10 ev/year;
- Giulia evaluate effective background reduction provided by 2/5/200;
- Elisabetta will ask to Neil&Co the possibility of using their water tanks;
- According to their answer, LNF people will provide a more detailed cost evaluation for both the options 2/5/100 and 2/5/200;

OTHER ACTIVITIES

Radioactivity Measurements:

- Hamamatsu bare CMOS sensor tested at LNGS. Waiting for results;
- Two Cameras (Hamamatsu and Teledyne) are arriving and will be put under test;
- Took a lot of Plexiglass from Palazzi to be measured at LNGS;
- Plan to test a ring or a piece of copper;
- Plan to test a ring or a piece Resistive sheet;

Camera evaluation:

- After the radioactivity measurements, the Teledyne camera have to be tested on LEMON to evaluate its performance;

OTHER ACTIVITIES

GEM gain non-linearity:

- Igor analysis is showing a dependence of Lemon response from Z even for $V_{\text{gem}}=420\text{V}$;
- Response linearity has to be checked (1) and if possible fixed (2)
- (1-a) we are investigating several possibilities of having low energy (well below 100 keV) candles. A promising candidate can be a X ray tube;
- (1-b) we can use the Laser in Francesco's lab;
- (2-a) GSSI people is planning to test COBRA-GEM
- (2-b) Michela is modifying a triple-GEM detector to add a grid below the GEMs.
- All these activities should be carefully planned not to interfere each other and not to interfere with other lab activities (e.g. LIME assembly and test).
- Person-power from Rome and GSSI will be needed.
- We should arrange a meeting next week to prepare a tentative agenda.