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HARPO

Micro-status report in preparation of the CS of P2IO, 27 - 28 June 2012.

Past

We have built a demonstrator, thanks to fundings from the Particules-et-Univers programme from CNRS IN2P3-INSU (2010) and IN2P3 (2011).

This demonstrator has been exposed to cosmic rays (single charged tracks) in the laboratory a couple of hours (Aug 2011), a test that has shown good behaviour, but a number of points had to be fixed (vacuum ..).

Starting from Feb 2012, we have resumed taking data, and coherent noise was diagnosed on the electronics. After having completed an emergency task on an other project (CMS @ LHC [Feb - Apr]), the engineer in charge of the electronics was able to mitigate the problem, and high quality data were collected and presented at the Pisa Conference [2]. The TPC is in very good shape.

We are presently scanning the main parameters of the TPC (pressure, drift and amplification voltages).

Present, future

At the end of April, after an intense effort of several administrative services, we were amazed to have the funding from P2IO notified.

The final trigger system is being designed / the presently used cosmic-rays trigger, built from 20th Century NIM units, wouldn't meet the specs.

A Collaboration meeting on site [3], aimed at finalizing the organization of the data taking, is in preparation (July). Data taking itself is expected to take place in the Winter.

D.B. will advocate the use of a TPC as a high angular resolution γ -ray telescope from the MeV to the TeV, and polarimeter, in a talk at the main γ astronomy conference [4].

References

- [1] MPGD2011 2nd International Conference on Micro Pattern Gaseous Detectors 29 Aug - 1 Sept 2011, Kobe, Japan,
Proceedings 2012 JINST 7 C03029 and arXiv:1203.5889 [astro-ph.IM]
- [2] 12th Pisa Meeting on Advanced Detectors Elba, Italy May 20 - 26, 2012
- [3] SPring8 and NewSUBARU, province of Hyogo, Japan.
- [4] 5th International Symposium on High-Energy Gamma-Ray Astronomy (Gamma2012), July 9-13 2012, Heidelberg, Germany.