

2nd Brainstorming meeting

DARK MATTER @ LPNHE

Monday November 3rd 2014

WRAP-UP DISCUSSION

Sandro De Cecco

Goals of this brainstorming

- LPNHE is not (yet) involved in direct search for dark matter but we feel it is important to understand if we have the will/forces to enter in this relevant domain for HEP physics in the next decade.
- DM direct search fits well between current projects (**LHC, Auger, T2K, ...**) and (very) future ones like : **HL-LHC – LSST – ILC – LBNF ...**



- We started an overview of the current/future projects which could match our lab skills and expertise in detector R&D.
- We feel constructive/stimulating to discuss this lab wide.
- This first meeting was not a comprehensive panorama but a good starting point to keep going in our collective reflection.
- A good timeline would be to produce roadmap for the end of the year.
- **@ today's meeting** : updated reviews and ongoing discussions on the options already discussed :
 - Ship : Heavy Neutral Lepton search at SPS
 - HPS : Heavy Photon searches at beam dumps
 - CCD : Low mass Wimp & axionic DM search
 - Noble gas TPC :

DM @ LPNHE brainstorming 03/11 agenda

Dark Matter @ LPNHE - 2nd brainstorming meeting

chaired by Sandro De Cecco (University of Paris VI and VII - LPNHE)

Monday, 3 November 2014 from **09:30** to **13:30** (Europe/Paris)
at **LPNHE (Salle des Séminaires (1222-RC/SB-08))**

Description Second brainstorming meeting at LPNHE on Dark Matter direct detection experiments.
Review of the current and future projects. Discussion on plans and next steps in view of LPNHE involvement.

Monday, 3 November 2014

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| 10:00 - 10:15 | Introduction 15'
Speaker: Sandro De Cecco (University of Paris VI and VII - LPNHE) |
| 10:15 - 10:55 | Update on SHIP experiment 40'
Speaker: Prof. Jacques Chauveau (LPNHE Paris 6-7) |
| 10:55 - 11:25 | Heavy photons search experiments 30'
Speaker: Giovanni Marchiori (LPNHE Paris) |
| 11:25 - 12:05 | Update on CCD based experiments 40'
Speaker: Dr. antoine letessier-selvon (LPNHE) |
| 12:05 - 12:45 | Update on noble gas experiments 40'
Speaker: Dr. Claudio Giganti (LPNHE IN2P3/CNRS) |
| 12:45 - 13:15 | Wrap-up and discussion 30'
Speaker: All |

Discussion and ... what's next?

- Important items for LPNHE discussion :
 - impact on physics production in next decade (variety of physics topics in the LAB, thesis ...)
 - R&D : opportunity to start a new activity and acquire new skills in the lab and/or develop maintain expertise.
 - Question : will this physics/R&D bring us (as a lab) new skills in the future?
 - getting involved in new project from the beginning (for next generation experiments) while taking data and doing physics already now.

Discussion and ... what's next?

- Plans :
 - I suggest that we produce a written (short) document summarizing the brainstorming we did by the end of year. Will be useful in any case.
 - Probably better to concentrate on few projects with clearly identified people and in 1 year status report of initial work.
 - Also, at least in an initial phase, it would probably be optimal to take these starting activities connected-coordinated somehow.