Summary discussion of the NEU2012 meeting – 27-28 September 2010
For comments.

For the contents of the meeting see the transparencies at
http://indico.cern.ch/conferenceDisplay.py?confId=106198

The meeting reviewed a number of activities of neutrino physicists that are related to the use of facilities – mostly at CERN. Some of them could be considered 'R&D', others 'studies' and some proposal for new experiment. One of the worries is that the accelerator-based neutrino community appears dispersed in Europe. Factors that contribute to this dispersion are
-- some are busy with the present CNGS beam
-- some are busy with neutrino experiments elsewhere (NUMI; T2K)
-- some are busy with Neutrino factory R&D
-- some are busy with superbeam or beta beam R&D
-- some are busy with large liquid detectors and among them there are proponents of Water Cherenkov which lends itself to low energy and short baseline, Liquid Argon better at high energy and longer baseline, magnetized detectors suitable for neutrino factory etc….
This makes it extremely difficult for CERN (and its management) to understand in which direction to go if one wants to pursue an activity in Europe. This multitude of options and timescales of highly subjective value or extent respectively makes planification difficult.

Following Silvia Pascoli, it is worth recalling at this point how fundamental neutrino physics is, as well as the issue of sterile neutrinos (of one type or another, Majorana partners or otherwise) whose existence would have both very fundamental and practical (dark matter) consequences.

Several practical proposals were raised during the meeting that could have a positive impact to unify better the community. This is of high relevance in view of the fact that the CERN strategy process begins again mid 2011 to extend until 2012.

1. Test beam activities
2. Establish a Road map
3. a low energy beam at the PS for sterile neutrinos and measurement of cross-sections
4. the study of high intensity beams realization for Laguna sites
5. technical accelerator R&D

Alain reviewed the pros and cons and feasibility.

It was agreed that the test beam is a straightforward and unifying activity, furthermore it is already a little bit funded
Action Alain to see to it that a proposal to the CERN SPSC is written and circulated in the community.

The road map proposal of Silvia was strongly endorsed.
Action for Silvia to pester the appropriate people for content. Target date for completion is early spring next year

The PS neutrino beam was strongly advocated by Carlo Rubbia for search of sterile neutrinos. Others emphasized the more mundane aspect of a neutrino 'test beam' that can also be used for cross-section measurements, a less speculative – and less exciting subject admittedly. This represents a substantial effort and question can be raised of what happens if the efforts at Fermilab solve themselves the puzzle while a CERN beam is still under construction. Carlo welcomed the idea that a scintillator detector would be sited in the near detector station.

It was proposed to integrate this possibility within a broader program in which the test beam constitute a first and realistic step, thus allowing a better build-up of forces for the PS beam, and the associated detector development constitutes a build-up towards a much stronger long-term program.

The proposal to study an intermediate beam to the two extreme Laguna sites (2300km in Finland and 130km to Frejus) was seen as another interesting possibility to make a concrete step. The synergy of the long baseline with the neutrino factory and of the short baseline (and its detector) with the beta beam were noted, thus this proposal will receive strong community endorsement if it includes practical implementation of these more novel neutrino facilities at CERN and not only a superbeam design.

Finally it was noted that the R&D towards the 'more ambitious facilities', especially the neutrino factory, has potential synergies with that towards CLIC, especially in the study of high gradient normal conducting RF. Justifying this accelerator R&D is much easier if there is a strong community at work at CERN.

In the ensuing discussion Ilias made repeatedly the point that there is a danger in front of us: CNGS program will be completed 2015, and at that point all accelerator neutrino activity in Europe could come to a complete halt. He noted that there seems to be little interest for experiments beyond OPERA using the CNGS beam.

In the discussion it was agreed that Alain would write the summary and circulate it as soon as possible. So there.

Alain Blondel, 4 October 2010