

Notes on PPAP Neutrinos + non-accelerator-based physics Day: 15th July 2009

(2) Summary of discussion issues

NB: These notes do not represent a verbatim transcript of everything said on the day, but rather provide a brief summary of the main points which came up in the discussions. For details of the presentations please see the slides on the agenda page at

<http://conference.ippp.dur.ac.uk/conferenceDisplay.py?confId=275> .

Approximately 70 people present

Summary of discussion during/after presentations

- The UK should support only world-leading projects.
- The UK should stay internationally synchronized.
- Priority should be on the ‘core programme’ for the next 5 years while we ‘prepare for the unexpected’.
- Neutrinos: some preferred an emphasis of effort on physics and detectors (in the near term) rather than R&D on the neutrino factory machine; some advocated aiming to host the NF far detector in the UK (at Boulby) and more emphasis on detector R&D with this in mind as a UK aspiration. Boulby is one of 7 European sites considered in the LAGUNA study.
- What should STFC’s strategy be in terms of promoting an underground lab (UK or abroad?) for future experiments?
- Some see possible physics programmes based on a high-power proton driver en route to the neutrino factory eg. rare muon decays.
- Since neutrino factory preparation would be very expensive should we aim to get funds from outside the normal PP budget – eg. Large facilities fund?
- A meeting at CERN October 1-3 will discuss European strategy on neutrinos.
- There may be scope for possible future reactor experiments if $\sin^{**2}(\theta_{13})$ is large.
- ‘Second measurements’ in the neutrino, dark matter and dipole moment sectors will be vital to establish results.
- Would a slip in the timescale for SuperNEMO have a serious impact? A delay of 2 or 3 years probably not; 10 years definitely would!
- It may be hard to pick ‘winning’ detector R&D technologies ahead of time.
- Liquid argon technology is interesting and promising. However several groups are working on it internationally – should we pursue it?
- Technologies for long-baseline neutrino detectors are still to be decided for JPARC and DUSEL.
- Dark matter experiments may be on the threshold of discoveries within 5 years.