

Notes on PPAP Energy frontier Day: 14th July 2009

(1) Draft PPAP findings

NB: This document does not represent a verbatim transcript of everything said on the day, but rather provides a brief summary of the main points which came up in the discussions, together with findings drawn up by the PPAP. For details of the presentations please see the slides on the agenda page at

<http://conference.ippp.dur.ac.uk/conferenceDisplay.py?confId=274> .

- In the near/medium term the top priority is the LHC programme, including exploitation and support of the GPDs and their phase-1 upgrades, and preparation for phase-2 upgrades at the end of the next decade. Proposals to participate in upgrade projects should be peer-reviewed in the normal manner.
- Increased UK involvement in the LHC accelerator upgrades is desirable, especially by UK industry. There are opportunities for such involvement and CERN is very keen that the UK should exploit them fully.
- In the long term there are several options for future energy-frontier facilities. Top priority beyond the LHC programme (including upgrades) should be an energy-frontier lepton collider. A decision to go ahead should be based on a strong case built on first LHC results, implying a decision point for major investment around 2012. The case for LHeC becomes strong if evidence for leptiquarks is found. The cost of these projects is such that the UK can probably only afford to contribute significantly to at most one of them. CERN is a primary route to UK involvement in future large projects.
- Despite the long timescales it is crucial that limited funding be provided now for R&D related to future facilities, to preserve UK strategic options, support UK expertise and maintain the breadth of the field. R&D for the ILC and CLIC should be on the roadmap. R&D for a muon collider follows naturally from the neutrino factory R&D programme.
- Accelerator R&D is beneficial both in scientific terms and through societal benefits, and the community should exploit any new sources of funding available to projects in this area. The potential science benefits provided by such projects must always have top priority however.
- Support for theory is vital for the health of UK particle physics. Phenomenology underpins the experimental programme and UK theory in general delivers world-leading science results of fundamental importance. Cuts to support for early-career researchers will harm the field's vitality.