

## **Meeting of Funding Agencies to discuss the status and funding prospects for a linear collider of 0.5 – 1TeV, 6 April 2004, London, UK**

1. A meeting was held on 6 April 2004 of representatives from Canada (NSERC), CERN (President of Council and DG), France (CNRS), Germany (BMBF), Italy (INFN), Japan (MEXT), UK (PPARC), and the US (DOE, NSF). The representatives from Japan were welcomed to this second informal meeting. A previous meeting had been held in July 2003. The group discussed the status of the major projects in their states, the developments since the first meeting, status of current funding for a linear collider (LC) and the steps they perceived were required to make progress in the near future towards the scientific goals of a linear collider.
2. All agencies restated the immediate priority of successful completion of the LHC for the future of particle physics research.
3. The group believed it important for the International Technology Recommendation Panel (ITRP) to make a recommendation on the technology choice on its currently proposed timescale. Although dependent on funding, this would allow, as proposed by ICF/ILCSC, an R&D phase for three years, followed by a full engineering design phase beginning in 2007 with completion of the design in 2010. It was accepted that the earliest operation of a sub TeV linear collider was likely to be in 2015, following from a decision to construct in 2010 at the completion of the engineering design phase. Commissioning of a LC in 2015 could provide 5 years of concurrent running with the LHC, as strongly recommended by the particle physics community due to the need for a linear collider to make precision measurements of the phenomena discovered by LHC. This timetable, is consistent with the OECD Ministerial announcement of 29 – 30 January 2004.
4. CLIC technology was acknowledged to be a potential route to a multi TeV linear collider. The feasibility of the CLIC concept could be demonstrated by 2010, assuming appropriate resources were made available. This would require the International Technical Review Committee R1 (feasibility proof) and R2 (conceptual design) issues to be addressed by the CTF3 facility. Assuming a successful outcome, an engineering design phase of 5 years and a construction period of 5 years would lead to the operation of a CLIC based multi TeV linear collider in 2021.
5. It was agreed that the aim was to proceed to the physics goals for a linear collider, which include special precision measurements of the new physics phenomena discovered by the LHC, as soon as possible. The strategy for achieving this would be determined by the physics considerations and the practical constraints. It was envisaged that if the LHC were to reveal no evidence for a Higgs boson and supersymmetry at its energy range, it could be concluded that there would be minimal physics output from a sub TeV linear collider and, according to present knowledge, the appropriate energy range for a linear collider should be multi TeV. In the latter case there would be no compelling physics case for concurrent operation of a LC with the LHC and it would be logical to proceed directly to a CLIC technology with operation from 2021, at the earliest possible date.
6. The group agreed that the optimal strategy would be to pursue R&D for a sub TeV linear collider, followed by an engineering design phase leading to a fully costed

construction proposal, based on the technology choice identified by the ITRP. In 2010, at completion of the engineering design phase for a sub TeV linear collider, a decision would be taken to proceed, assuming the evidence from LHC supported the accessibility of physics at sub TeV energies. Physics criteria would need to be developed and agreed to form the basis for the decision to confirm construction of a sub TeV linear collider in 2010.

7. In parallel, R&D to address the R1 and R2 issues of CLIC should proceed to demonstrate feasibility by 2010. If the LHC results reveal no evidence for supersymmetry or a Higgs boson at a sub TeV energy range, the alternate CLIC technology, should it prove feasible, may be adopted, taking advantage of the synergies between the technology and engineering design available from the sub TeV linear collider and that required for CLIC. This would also be dependent on the impact of LHC physics.

8. This strategy would realise the physics aims and potential of a linear collider in the shortest possible time, keeping open the option of a multi TeV linear collider should a sub TeV linear collider be unable to explore supersymmetric phenomena.

9. The Group discussed the proposal by ICFA that a Global Design Initiative be established. It was agreed that the funding agencies should agree the nature of a sub Group in autumn 2004 to consider the issues relating to the interactions of the funding agencies with the initial Global Design Effort and its evolution into a Global Design Organisation.

10. It was noted that CERN Council planned to hold a special meeting on July 19 2004 to discuss its potential role in, and interactions with, a linear collider. The Group agreed to hold its next meeting in London on July 26/27 2004, to which the Chairperson of the ITRP would be invited.

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25 April 2004