

The US HEP Planning Process and the Neutrino Program

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Brief Overview of US Planning Process

Two US funding agencies (DOE, NSF) jointly request a HEPAP sub-panel be formed

- * Charge is to chart a 20-year future for US HEP
- * Studies of physics goals, needs for future facilities, and relationship with society and other sciences to be studied

Draft Report Issued
October 29, 2001

- * Executive summary accepted by HEPAP
- * Final report will be submitted to HEPAP in January, 2002
- * Is it possible that there were be some delay before report leaves DOE/NSF (September 11 concerns)

Recommendations

(stripped of non-physics statements, careful phrasing)

Recommendation #2

To ensure a carefully chosen, balanced program, the US will initiate an ongoing prioritization panel (P5), with the charge to rank experimental efforts of a size that impact the entire US HEP budget but are not "once per decade" projects. (\$50M–\$500M). How an effort fits into global HEP program is to be explicitly considered.

Recommendation #3

The highest priority is given to a major US participation in an international program to construct a TeV-scale linear electron collider.

Recommendation #4

The US should prepare a bid to host the linear collider.

Recommendation #5

The US should increase R&D for future efforts.

What is said about the neutrino program?

Physics goals are strongly endorsed

- * "an essential component of future program"
- * studies of mixing matrix, masses (including nature of mass), CP violation are given particular mention
- * directions will be influenced by current experiments

Future Tools explicitly mentioned

- * Intense proton sources
- * Deep underground sites ($\beta\beta$ decay, neutrino astronomy)
- * Megaton-class detectors
- * R&D towards intense muon facilities

Current US Program

Oscillations experiments under construction in US

- * MiniBooNE (LSND region)
- * MINOS (Atmospheric region, ν_{μ} disappearance)
- * Also, significant participation in KamLand, K2K

Future Projects under Study in US

- * Second fine-grained, off-axis detector for NUMI
- * MW proton source (FNAL, BNL)
- * Megaton H₂O–Cerenkov detector (UNO)
- * Muon source R&D
- * Next generation $\beta\beta$ decay (EXO)
- * Deep underground laboratory