



MEETING OF THE AMERICAN PHYSICAL SOCIETY DIVISION OF PARTICLES AND FIELDS

Contribution ID: 195

Type: Poster

LBNF Optimized Horn Design & Target Integration

Monday, 31 July 2017 18:18 (1 minute)

Optimization efforts for the Long Baseline Neutrino Facility (LBNF) have been pursued as an opportunity to further expand the reach of the experiment in the energy spectrum, and to significantly increase neutrino flux to the detectors. Major improvements and subsequent reconfigurations have been completed to the horn focusing system, in addition to the target, achieving the goals set forth. The optimized design is proposed as a three-horn system, with the graphite target now integrally supported within the primary horn, Horn A. Secondary and tertiary horns have been enlarged to increase pion gathering and maximize the potential of the near site facilities. Preliminary thermal and structural analysis for critical components will be presented, in conjunction with conceptual target layout and overall system operation.

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Session Classification: Poster Session and Reception

Track Classification: Accelerators