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(I) DUNE and PIP-II

Tuesday 7 June 2022 16:05 (25 minutes)

The Proton Improvement Plan II (PIP-II) project is an essential upgrade to Fermilab's particle accelerator complex to enable the world's most intense neutrino beam for the international Long Baseline Neutrino Facility (LBNF)/Deep Underground Neutrino Experiment (DUNE), and a broad particle physics program for many decades to come. PIP-II will deliver 1.2 MW of proton beam power from the Main Injector upgradeable to multi-MW capability, and will provide capabilities for Continuous Wave (CW) beam operation, and multi-user delivery.

The central element of PIP-II is an 800 MeV linac, which comprises a room temperature front end, up to 2.1 MeV, followed by a SRF section. The front end up to ~20 MeV has been constructed and was commissioned in the PIP-II Injector Test facility. The SRF accelerator consists of five different types of cavities/cryomodules, including Half Wave Resonators, Single Spoke and elliptical resonators operating at state of the art parameters.

PIP-II is the first U.S. accelerator project to be constructed with significant contributions from international partners, including India, Italy, France, the United Kingdom and Poland. DOE's Argonne, Berkeley and Jefferson laboratories are also contributing key technologies. The project received CD-1 approval in July 2018, CD-2 in Dec 2020 and CD-3 start of construction in April 2022. The project will be completed in 2028.

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