

PIP-II

Project Director Report March 2021



Project Highlights

- PIP-II received CD-3a approval on 16 March 2021
- PIP-II design beam parameters demonstrated at PIP2IT
- 7th PIP-II Project Executive Board (all Partners) meeting was held March 11 with focus on CD-3

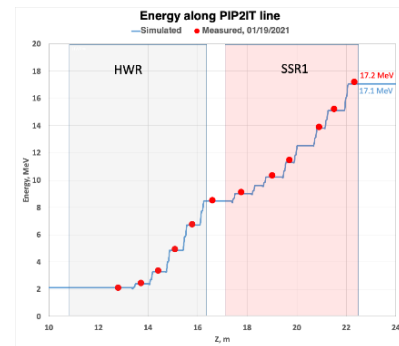
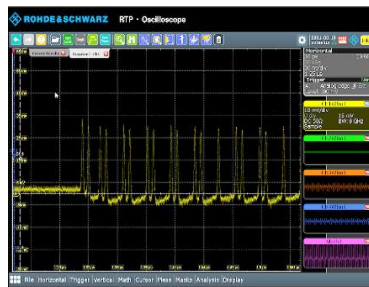
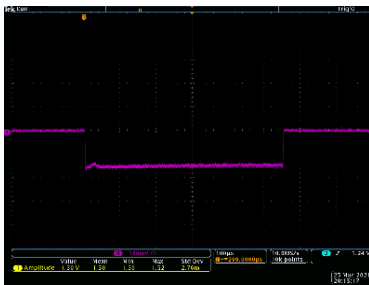
Major Upcoming Events

- 31 March - PIP-II All Hands
- 6-7 May - PIP2IT Retreat
- 1-3 June - PIP-II Machine Advisory Committee meeting
- 14 June - PIP-II Project Executive Board (P2PEB#8)

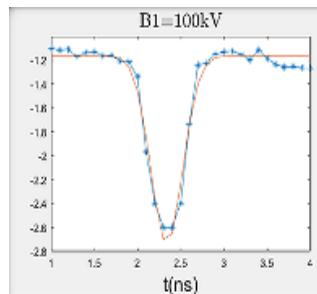
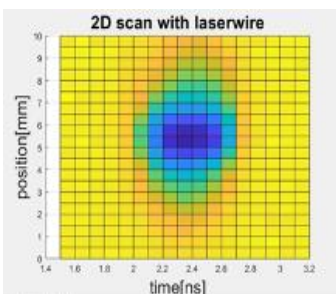
PIP-II Design Beam Parameters Demonstrated at PIP2IT

LBNF Booster beam was demonstrated at PIP2IT: **16.5 MeV, 2 mA, 550 μ s, 20 Hz** with chopped “Booster Injection” pattern and 100% transmission through the cryomodules. The MPS is fully operational, the bunch-by-bunch chopper is operational, beam optics improvements continue.

PIP2IT beam was accelerated to 17.2 MeV by first two PIP-II cryomodules, HWR, SSR1. **Measured energy closely matches predicted value** after cavity voltage calibrated with beam and beam quality improved.

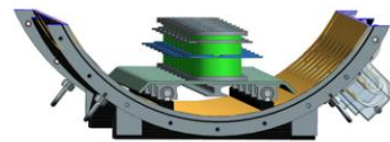


Successful Demonstration of New Laser Wire Profile Monitor



Newly installed and successfully demonstrated laser wire profile monitor, is used to measure transverse and longitudinal profiles and 2D-correlations, by stripping electrons from H⁻ with a laser and capturing the stripped electrons.

Design of SSR1 production and SSR2 pre-production cryomodules proceed in parallel. Design of strongback, support posts and high temperature thermal shield is ongoing.



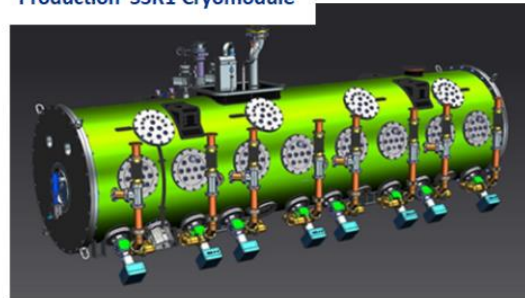
SSR2 Cryomodule



Conventional Facilities



Production SSR1 Cryomodule



Accelerator Upgrades



Testing of new Main Injector Dual Power Amplifier Modulator in progress. Working on requisitions for Main Injector RF power tubes and power amplifier parts. Finalizing Beam Absorbers Design at the 177 MeV location, FDR review is April 28th. Procured Booster beam current monitor (CD-3a scope).

Conventional Facilities

- Cryoplant Building construction is ongoing.
- Linac Complex Design completion in 4/2021.
- Booster Connection Design start in 4/2021.



CD-3 Timeline

