

# Summary of work done

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12 Mar 2020

Machine	Description	People	Status
Pre-Acc	Inserted 750 keV collimator	Kiyomi/Dan/Pat	Lowered losses overall in Booster but not at injection. (28 Jan)
Pre-Acc	Penning source and test stand	Dan/Pat	Consulting with RAL about how to start Penning Source. Hiring process for new Postdoc for PreAcc/Linac started.
Pre-Acc	Laser collimation of head/tail of longitudinal beam. (LDRD)	Dave	New style flange designed for easy install/uninstall. Waiting for quote.
Pre-Acc/Linac	Simulation of PreAcc + Linac	Valeriy/Kiyomi/Dan	Permanent magnets being considered.
Pre-Acc/Linac	Re-aligned RFQ	Kiyomi/Dan/Pat	Realigned during shutdown
Linac	Klystron testing	Kiyomi/Al	4 good, 1 bad, 1 maybe (still being, had bad focusing of e beam, conditioning right now), 2 more to test (11 Mar)
Booster	Flat injection porch	Kiyomi/Bill/George/Howie/Chris	More flat injection studies with DC ramp 11 March.
Booster	Adiabatic capture	Chandra/Tan	Studies done of 26 Nov.
Booster	2 <sup>nd</sup> harmonic	Robyn/Tan	Measurements completed with cracked shell. Sent for cleaning and repair.
Booster	Wide bore cavity	John/Robyn	Low power tests completed. High power tests. Plan to install during 2 day March shutdown.
Booster	2 stage collimators	Valeriy/Chandra	Meeting on 21 Jan 2020. Preliminary engineering design. Simulations to show calculate efficiency of these collimators to continue.
Booster	Injection girder and injector civil construction, and girder test stand	Dave/Salah/ Tan	E4R cleaned up. See photos taken on 21 Jan.
Booster	Garnet loss improvements	Robyn/Tan/Iouri/Gennady	Solenoid design completed. Engineering drawings being generated. (02 March)
Booster	Mode 2 longitudinal damper	Bill/Victor	Measurements (18 Feb) of mode 2. RF#7 will be used for damping. Studies on 09 Mar ..
Booster	Kickers	Salah/TD	R&D to improve longevity of kickers has started (07 Jan)
LLRF	GMPS machine learning (get rid of reference magnet)	Bill/Brian/Kiyomi	Work continues with Rogowskii coil. Difference between 2 coils being tested.
LLRF	Complete DDS upgrade, paraphase controller	Brian/Ed	Nearly works. Fixed problem of large phase offset during studies. Traced to wrong delay of cables used to replace one of the modules. Phase jump at bunch rotation causes sparking in RF stations.
LLRF	LLRF	Brian/Ed/Bill/Tan/Valeri/Craig	See today's demo.

# Task force updates

- Injection girder
  - Talked to Dan Wolf and Howie Pfeffer, we will have to do a SPICE calculation as to whether there will be an “imbalance” (transmission line modes) that will shake the beam because of the addition of 4 D magnets that are not identical to the D magnets in Booster. (30 and 31 Oct 2019)
  - Absorber review (20 Nov 2019) <https://indico.fnal.gov/event/22416/>
- Lattice
  - Studies 11 March.
  - Orbits tuning during the week
- Digital LLRF
  - Meeting on 22 Nov
    - Ed will discuss with Bill and Kiyomi about 2<sup>nd</sup> pass of signals required for Booster from PIP-II Linac
- Magnet girder tests
  - Girder to be moved IB3 to be sandblasted. Then to E4R. (12 March)
  - Magnet mover discussion has started. (04 March)
- 20 Hz infrastructure
  - Plan to have meeting soon

# Task force updates (cont'd)

- 2 stage collimators
  - Task code has been supplied. Drawings started.
- Tall aperture gradient extraction magnets
  - See injection girder about the problem with GMPS with non-identical D magnets.
  - Calculation for gap size first pass says about +/- 5 mm required. However, needs benchmarking with current operations.
- 20 Hz cavity tests
  - Report has been written. Being reviewed (10 Feb)
- 50 kV in situ cavity test. Required for PIP-II
  - 11, 12, 13, 14 running at 50 kV gap voltage (26 Feb)
  - Water leak in tuner of 11 (11 March)
- Shielding assessment
  - First meeting held. M. Vincent (Safety) will be leading.
- Tevatron tunnel mods for BTL
  - New lattice means no more rolled dipoles to get above the ceiling.
  - A beam pipe will go straight through the tunnel. Removed when necessary to move magnets.
- BTL to L11 changes
  - Collimators to be simulated.
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