

# Summary of work done

C.Y. Tan  
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# Status of PSP projects

| MachineStu    | Description   | People                         | Status  |
|---------------|---|--------------------------------|---|
| Pre-Acc       | Started H- magnetron tests with longer pulse widths.                | Dan/Pat/Daniel                 | Goal is to see whether PIP-II parameters can be obtained.   |
| Pre-Acc       | Penning source removed from test stand. Normal magnetron installed. | Dan/Pat/Daniel                 | Training postdoc, Daniel  |
| Pre-Acc       | Laser collimator laser cavity replaced with new flange design       | Dave                           | Replaced on 21 Jan 2021   |
| Pre-Acc/Linac | Simulation of PreAcc + Linac  | Valeriy/Kiyomi/Dan             | Permanent magnets being considered.   |
| Linac         | Klystron testing  | Kiyomi                         | Last klystron to be tested. We have 5 good, 2 bad, 1 to be tested.  |
| Booster       | Flat injection porch  | Kiyomi/Bill/George/Howie/Chris | To be continued in 2021   |
| Booster       | Lattice studies   | Jeff/John J                    | Data taken to see why losses improved with QS changes.  |
| Booster       | Adiabatic capture/RF phase measurements                             | Chandra/Tan                    | Work continues ...  |
| Booster       | 2 <sup>nd</sup> harmonic  | Robyn/Tan                      | Decided to use foil braze material. Washer brazed due to leakage – at machine shop.                                   |
| Booster       | Wide bore cavity  | John/Robyn/Matt                | Tuners have been assembled. Electrical testing required. Assembly next. Expect to be completed this week.             |
| Booster       | 2 stage collimators   | Valeriy/Chandra                | Met on 19 Feb to decide on final length of primaries.   |
| Booster       | Injection girder and injector civil construction to Booster         | Dave/Salah/ Tan                | E4R test stand install continues. Civil construction: company will start drawings in Jan 2021.                        |
| Booster       | Kicker beam tube manufacture + mods                                 | Salah/ Tan                     | New kicker beam tubes to be made. Test of shrinking mylar insulation to protect tubes from corona damage. See photos. |
| Booster       | Garnet loss improvements  | Robyn/Tan/louri/Gennady        | Got solenoids. See photos.  |
| Booster       | Mode 2 & new longitudinal dampers                                   | Bill/Nathan                    | Today's talks. PDR on 31 March.   |
| LLRF          | GMPS machine learning (get rid of reference magnet)                 | Bill/Brian/Kiyomi              | Firmware work continues. Gathering data for ML. Waiting for chassis.  |
| LLRF          | Phase feedback, radial feedback                                     | Brian/Ed/Bill/Tan/Valeri/Craig | A lot of progress. Hardware being assembled.  |

# Task force updates

- New CHG0 (paid by PIP2)
  - Permission to spend money after PIP2 CD3A approval. Expected
    - Review on 17 Feb
    - Approval mid March
    - Reqs in Mid Apr
- Transition crossing – group was formed. Led by Chandra.
- 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/>
- Magnet girder tests
  - E4R girder bus moved to Booster Gallery for repair (D. Wallace). See photos
- 20 Hz infrastructure
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# Task force updates (cont'd)

- 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 is being written. Status?
- 50 kV in situ cavity test. Required for PIP-II
  - Plan is to run continue some cavities at 50 kV once we are back to regular HEP running.
- BTL construction
  - Req is done. Waiting for PO. Expect PO to be sent out in April.

# Heat shrinking mylar on ceramic tube test



