SR Startup

- Prepared files for high-emittance and low-emittance lattices
  - Quadrupole snapshot file require difference adjustment model based on previous SCR files.
  - Trim and H1 snapshot file.
  - Orbit correction and steering files
- We determined rather quickly that S19A:MT was connected with the wrong polarity.
  - first turn trajectory correction and further orbit correction resulted in a special 3 mm orbit pattern and strong correctors in sector 19

General Lattice Setup

- Correct orbit
- Correct optics, measure beta for 35BM, 35ID
- Correct etay
- Save files with minimum coupling and with desired coupling.
- Chromaticity optimized for bunch pattern
- Find optimum RF voltage
- Optimize closed bump, on-axis injection, and injection in general.

High-emittance Lattice

- Optics not corrected.
- Emittance 7.5 nm-rad
- Coupling 1%
- Chromaticity optimized for bunch pattern
- Lifetime 22 h
- Optimum RF voltage is 9.0 MV

Low-emittance Lattice

- Optics corrected.
- Emittance 2.4 nm-rad
- Coupling 0.8% - 3.0%
- Lifetime 4h - 7h
- Optimum RF voltage is < 9.0 MV
- Longitudinal multibunch instability seen often for I< 100 mA or VRF < 9.5 MV

Software Tests

- Datapool procedures
- Change in SR corrector PVs required modification of several tcl libraries and applications for SR setup, conditioning and orbit correction which all needed testing.
- New features to XrayBPMReview, SRXrayBPMCalibration, and SRbpmOffset

Datapool Correction

- Improvements in orbit configuration widgets to show which bpms can not be selected.
- Tested procedures for
  - rebooting fbioc40, opening RT loop while datapool orbit correction is running, restore correctors after a beam dump, return to vector mode if scalar mode was set.
  - Needed to insert small scripts to make them safe.
- Took orbit motion data with and without datapool OC running, and got

Miscellaneous

- Checked quality of bpm histories. Found that about 1/3 have corrupted data that makes them unusable.
- Wrote script to automatically collect beam images from all BTS flags to estimate BTS emittance.
- Attempted to improve injection efficiency by turning off all H correctors and centering beam. No improvement.
- Setup BTS controllaw with new low-noise BTS bpms.