ASAC Recommendations for Accelerator Physics

- Measure the longitudinal emittance in MEBT with greater precision because the initial “upper limit” estimate is a value that could lead to downstream beamloss
  - Response:
    - We plan to measure the bunch length in MEBT by outfitting antichopper box with production fast faraday cup (to be done)
    - BSM measurements in D-plate (underway)
- There is a difference between the driving terms for mechanical resonance produced by the Lorentz force and by the piezoelectric tuners. It is recommended that this be investigated for the SNS cavity shape because this difference has not been seen in the case of the TESLA cavities
  - Response: (leave for Claus?)
    - No a priori reason to expect the same driving terms since each excites the cavity in different ways
- It would be useful to compare the extraction channel clearances for all four cases:
  - Response:
    - Ring acceptance > 480 pi mm mrad, Septum clearance > 400 pi mm-mrad (Deepak’s talk)

ASAC Recommendations for Accelerator Physics

- We suggest repeating the 1000-turn tracking simulations using measured magnet errors and the foreseen magnet locations instead of random seeds. …..It would be useful to know if the loss patterns change significantly for different operating tunes, chromaticity values…
  - Response:
    - Need i) completion of quad measurements
      - i) completion of quad measurements: measurement and sorting of the 21Q40 magnets was recently completed (Deepak). Measurements/shimming/sorting of remaining 24 ring quads is underway.
      - ii) magnet measurement data in database
      - Should appreciate that in error studies using random seeds, explore losses with much larger errors than BNL is routinely achieving.
      - Nevertheless we are continuing ring simulations with improved capabilities (Holmes)
- The need for more high-level summary (comfort) screens. This should be worked out with the help of the operators and the Accelerator Physics group.
  - Addressed by Controls (D. Gurd)

AP Talks at ASAC

- AP Overview – Henderson
- Performance Update for Front-End Systems – Aleksandrov
- DTL Commissioning Results and Plan – Tanke
- ORBIT Simulations and Results - Holmes