

RHIC Retreat 2002

Machine Integration

Quench Tuning

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RHIC Retreat 2002 - Quench Tuning

- Main Ring Magnet Circuits
 - Quench tuning is not complete. Work can be done to improve the accuracy of the inductance tables.
 - With improved inductance tables, faster ramp speeds are possible and the Q.D. are less likely to trip due to a p.s. current glitch.
 - New inductance tables can be produced with 3 to 4 days worth of taking ramp data and analysis of the data.
 - The new tables should allow ramp rate of SF 1 for up and down ramps between injection and top energy and SF 3 for up and down ramps between park and injection.

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- Main Ring Magnet Circuits (cont'd)
 - With the improved inductance tables, one can expect to be able to ramp from injection to any energy at SF 2 and ramp down to injection at SF 3. This assumes the slow start and slow finish ramps. (Like the ones used for the proton run.)
 - The main limitation is one cannot break the hysteresis cycle. (i.e. One cannot skip going all the way to park when coming down from top energy when starting a new ramp.)

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- Main Ring Magnet Circuits (cont'd)
 - If for some reason one needs a special ramp that requires retuning, the Q.D. system supports the use of different inductance tables. It may take 1 shift to take data on the new ramp, analyze the data, modify the inductance tables and then test them. Once the tables are done it should take no more than 5 minutes to load them up using a new application that will be developed this year.

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- Aux. Circuits Tuning - Sextupole, Trim Quad, and Helical
 - Sextupole and trim quad magnet circuits need more work to see what the limits are for ramp rates. They are just good enough for existing ramps.
 - The routine for compensating for changes in resistance of the room temperature cables in the sextupole circuits is working.
 - The coil difference routine used for helical magnets works fine for three snake locations. There is a problem in blue sector 9 where things do not match the other location. But the snake in B9 was functional as long as slower ramp rates were used.