Jul 13, 2004

Procedure for Setting the HER Energy for Off Resonance Running

We need about 5000 pb^{-1} (~10 days) for the off resonance run. In general, off resonance data needs to be about 10% of the peak data.

Change the HER beam energy with beams in collision.
Use medium to full beam currents (bottom of fill is a good place).

- Save configurations and orbits of the rings and injection lines in ***normal***.
- Print out the beam energy values and the E_{cm} value.
  On the PEP-II energy panel (from the BaBar panel) use
  E_HER[BACT] for the HER energy,
  E_LER [BACT] for the LER energy and
  E_CM[BACT] for the center-of-mass energy.
  These values are in the middle of the screen. Use the Eactual [BACT] numbers.
  Ask for a new reading using the "Meas Energy w/o NMR" knob just above the lower right-hand corner.
- Set up the multiknobs (see below)
- Push the inject button on the BIC panel to stop BaBar data taking.
- Inform BaBar that you are about to change energies before moving any knobs.
- Change the energy of the HER with the multiknob: **HER_ENERGY.MKB**.
  The knob changes **only** the main bends and quads.
  Correctors are not touched so all feedbacks can and should stay on.
  Lower the HER energy −68 MeV according to the E_HER[BACT] value. The knob should track this number. The current ring energy should be about **8991.0** MeV, set the ring energy to **8923±1** MeV.
- When the HER is lower by 68 MeV, the E_CM [BACT] value should be lower by 40 MeV (From 10592 to 10552±0.5 MeV). Get a new measurement and print out the new values for E_HER and E_CM.
- As you change the energy of the ring check the tunes and orbit to make sure they are not drifting.
- Adjust the injected beam energy using the knob: **HERINJENGY.MKB**. Move it as much as you move the ring.
- Save configs and orbits and standardize the rings and injection line. **NOTE: The ring standardization should NOT include the skew quads or the tune quads**. Check injection, orbits, and tunes after standardization.

This file is called "Off Resonance Jul04.doc" and is located in the users drive under….sullivan—pep—energy in the PC world

Procedure for getting back to the 4S peak

When we have collected the 5000 pb-1 we will go back to the 4S peak. At this time, we think we were right on the peak before we moved down. The ***peak of the 4S*** ***resonance*** is supposed to be **10592.0** MeV according to BaBar (was 10593.2 in Apr 2003)
Change the HER beam energy with beams in collision.

- Save configurations and orbits of the rings and injection lines in ***normal***.
- Print out the beam energy values and the E_{cm} value.
  On the PEP-II energy panel (from the BaBar panel) use
  E_HER[BACT] for the HER energy,
  E_LER [BACT] for the LER energy and
  E_CM[BACT] for the center-of-mass energy.
  These values are in the middle of the screen. Use the Eactual [BACT] numbers.
  Ask for a new reading using the "Meas Energy w/o NMR" knob just above the lower right-hand corner.
- Push the inject button on the BIC panel to stop BaBar data taking.
- Inform BaBar that you are about to change energies before moving any knobs.
- Change the energy of the HER with the multiknob: **HER_ENERGY_POS.MKB**. The knob moves only the main bends and quads. Correctors are not touched so all feedbacks can and should stay on. The knob will ***only*** move ***positive*** so you cannot back up. Raise the HER energy +68 MeV according to the E_HER[BACT] value. The knob should track this number. The current ring energy should be **8923±1** MeV, set the ring energy to **8991.5±0.5** MeV. ***Use the knob all the way, but be very careful! Try not to overshoot! Keep in mind that the knob is slow.*** If you overshoot, we will have to standardize the ring.
- When the HER is higher by 68 MeV, the E_CM [BACT] value should be higher by 40 MeV (From 10552 to 10592±0.5 MeV). Get a new measurement and print out the new values for E_HER and E_CM.
- Adjust the injected beam energy using the knob: **HERINJENGY.MKB**. Move it as much as you move the ring.
- Save configs and orbits. If you did not overshoot then you are done.
  Otherwise backup and standardize the ring but do NOT standardize the skew quads or the tune quads. Check injection, orbits, and tunes after standardization.