EIC IR Design Meeting

Draft Minutes for Friday, September 25, 2020

Agenda

1 Synchrotron radiation with 50 cm shifted IR—C. Hetzel

1. Simulations use one-billion particles total (∼10 % in tail distribution and ∼90 % in core distribution).
2. The distribution is from an "eyeball" fit to four datapoints courtesy of C. Montag.
3. C. Montag: The factor of 3.24 is the ratio of the RMS beam size (not the emmitance) of the tails to the core (in the x direction).

2 [Postponed] IR magnet layout—Friends from Magnet Division

Postponed to next meeting.

3 Beam-Beam Tails—C. Montag

Title: "Proton bunch length effects on transverse electron distribution"
File: beambeamtails-September2020.pdf

1. x-y distributions shown on slide 2 with units of σ while slide 4 shows the z-y distribution.
2. Conclusion [slide 5]
   (a) "Long" proton bunches ($\beta_e \approx \sigma_z^{\text{proton}}$) lead to significant reduction of vertical electron tails
   (b) Effect has been observed by two different simulation codes
   (c) Beam-beam effect on transverse electron tails in EICis small
   (d) Beam-gas scattering expected to be dominant effect-need to include in simulations
3. Slices are longitudinal subsets of a bunch with equal intensity. Since the slices are of equal intensity, their longitudinal spacing is not uniform.

4 All other business

None.

5 Draft agenda for Friday, October 2, 2020 from 2:30 to 3:30 p.m.

1. IR magnet layout—M. Anerella on behalf of Friends from Magnet Division
2. All other business

Contact H. Witte or W. Christie to be added to the agenda.