EIC IR Design Meeting

Draft Minutes for Friday, May 1, 2020

Agenda

1 Impact on detector of introducing solenoid field, discussion re. (cont.)—V. Morozov

Title: "Impact on Detector of Introducing Solenoid Field"
File: 2020-05-01_IRMeetingLowBetaQuadsRear.pdf

1. Discussion [slide 17]
   (a) What is the limit on the closed orbit offset in the FFQs allowed by the dynamic aperture and FFQ multipoles?
   (b) Can independent vertical kickers be integrated into the two forward ion dipoles?
   (c) Can vertical kicker be integrated into the first rear ion FFQ?
   (d) Is the interaction plane rotation by about 0.05 mrad okay with physics?
   (e) Suggestion: Case 4 for upstream, Case 0/2 for downstream.
   (f) Need to check how shifts and rotations of the downstream quads affect the compensation.
   (g) Comments, suggestions?
2. Added slides on coupling compensation.
3. H. Witte: Have a more focused discussion and rank options' feasibility.

2 Rear, low β quads—H. Witte

Title: "IR Rear Quads"
File: solenoid_compensation_01may20.pptx

1. Summary [slide 10]

(a) No iron design: frees up space for cold/warm transitions

(b) Compensation coil required, which cancels unwanted harmonics

i. Can fix integrated harmonics

ii. Position dependent harmonics

iii. Adjustable, works for any field

(c) Requires more coils

(d) Sensitive to misalignment

i. Probably even more a problem with old design

(e) Overall more credible design

(f) Needs more work

2. Compensating for Q1eR and effect of correctors on other beams still needs to be done.

3 All other business

1. Discussion of geometry, will be continued offline.

4 Draft agenda for Friday, May 8, 2020 from 2:30 to 3:30 p.m.

1. Solenoid compensation schemes—V. Morozov
2. Update on equal divergence studies—V. Ptitsyn
3. All other business