eRHIC IR Design Meeting

Minutes for Friday, July 12, 2019

Present: Holger Witte (Chair), Elke Aschenauer, Alexei Blednykh, Kyle G. Capobianco-Hogan, Bill Christie, Gary McIntyre, Christoph Montag, Bob Palmer, Vadim Ptitsyn, Guillaume Robert-Demolaize, Steven Tepikian

Agenda

1 Presentation on the path to a CD1 Design by Holger

File: 2019-07-12_IRMeetingCDR.pptx

1. Elke: BPMs should include masks [slide 2].

2. Elke: What level of stray field in the electron line would be tolerable [slide 3].

3. Bob: Will need correctors to compensate for effect of central solenoid on electron beam.

4. Having issues with simulation run time and convergence; multicore Opera license would be expensive [slide 5].

5. Still need to figure out why Guillaume's matching has higher gradients than Holger's [slide 7].

6. Prioritization Matrix: Everything is urgent [slide 10].

    (a) Holger: The timeline we were given implies that work for the CDR-level needs to be completed by April of next year.

7. Elke: Need electron matching before simulations can proceed.

8. Elke: Need layout for IR12.

9. Stephen: Don't have electron matching solution yet. 18 GeV converged.

10. Bob: Will need an intermediary step that doesn't satisfy anyone's requirements, but is at least more realistic than the pCDR.

    (a) Christoph: Stephen should send Elke whatever he has at the moment.

11. Bob: We still need to look into the impact of decreasing the y-divergence of the electrons.

    (a) Mike Sullivan would like 25σ in vertical (rather than 15σ), which could be achieved by decreasing the y-divergence.

    (b) Vadim will present on this at meeting after next.

12. Elke: Need to integrate a fast trigger for the beam dump to protect detectors.

2   Update on Electron matching by Stephen Tepikian

Tabled, see section 1, item 9.

3   AOB

3.1   *"Impedance optimization for eRHIC"–Alexei*

File: eRHIC_project.pdf

1. Need to reduce impedance and heat in IR chamber where the beam pipes split [slide 8].

4   Next Meeting: Friday, July 26, 2019

4.1   *Draft Agenda*

1. Stephen–Update on Electron Matching

2. Holger–Task List for CD1 and Milestones

5   Meeting After Next

1. Vadim will present on functional impact of decreasing y-divergence of electron and hadron beams on luminosity.