

eRHIC IR Design Meeting

Draft Minutes for Friday, September 20, 2019

Present: Holger Witte (Chair), Elke Aschenauer, Alexei Blednykh, Mark Brightfellow, Kyle G. Capobianco-Hogan, Charles “Charlie” Hetzel, Gary McIntyre, Christoph Montag, Robert “Bob” Palmer, Vadim Ptitsyn, Michael Sullivan, Steven Tepikian, Qiong Wu

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1 Bob: Updated IR Figures

Title: “Beam sizes in crab cavities”

File: [1909-work-v5.pdf](#)

1. Clipping PF crab cavity with 275 GeV beam [slide 8].
 - (a) Qiong: Raising crab cavity aperture radius by $\leq 10\%$ (from 5 cm) is probably alright.
 - (b) Could redesign crab cavity region/redo the match to bring 10σ (of proton beam) down below 5 cm.
 - (c) Holger: Would be good to get down to RHIC dimensions.
2. Also have issues at lower energies, will need to redo the matches to have the same 10σ as 275 GeV beam.

2 Mark Brightfellow: Presentation Ideas

Title: “EIC Detector Infrastructure – 7/31/19”

Subtitle: “EIC Detector Infrastructure - 9-19 .pdf”

File: [EIC Detector Infrastructure - 9-19 .pdf](#)

1. Charlie: Does beam pipe get removed for servicing?
 - (a) Elke: For servicing micro-vertex detector, yes.
2. Elke: Can't do left-right split for hadron calorimeters; can maybe do top-bottom split.
3. Can reuse stands and Hillman tracks from STAR.

3 Charlie: Update on Vacuum Status

Title: “Version 3 geometry”

File: [IR meeting - Vacuum 9-20-19.pptx](#)

1. Reduced loss to 262 W with 12 mm bunch length.
2. Can further reduce to 30 W with 24 mm bunch length.
3. Holger: Where did quadrupole inner radius come from?
 - (a) The pCDR (Final Revised version).
 - (b) Holger: We may have found a mistake in the pCDR.
4. Elke: For now, calculate synchrotron radiation for baseline design.

4 Holger

4.1 Update on Cryostat Dimensions

1. Not yet; postponed to next meeting.

4.2 Path Length

Title: “Path Length”

File: [2019-09-20_PathLength.pptx](#)

1. Our “match” goes 1.12 m past the match point, hence the 1.12 m discrepancy.
2. We should all agree on and use a single coordinate system to avoid issues in the future.

5 Agenda for Mike's Visit

1. Holger: Review previous results.
2. Elke: Review Mike's presentation from EIC user's group meeting.
3. Will meet in Tandem Library (or maybe Physics).

6 Next Meeting: Friday, October 4, 2019 from 2:30 to "3:30" p.m.

6.1 Draft Agenda

1. Cryostat
2. Results from Mike's Visit
3. Physics Simulations