

# EIC IR Design Meeting

Draft Minutes for Friday, June 5, 2020

## Agenda

- 1 **Pinch effect on electron beam—R. Palmer** 1
- 2 **All other business** 1
- 3 **Draft agenda for Friday, June 12, 2020 from 2:30 to 3:30 p.m.** 1

### 1 **Pinch effect on electron beam—R. Palmer**

Title: “ $10^{34}$  Luminosity ideas”

File: [2006-params-6.pdf](#)

1. Parameters courtesy of Derong Xu.
2. “Pinch” meaning anything that happens near the IP and changes the bunch shape or parameters.
3. F. Willeke: The “pinching” only effects the core of the beam within the first few  $\sigma$ . In a two IR scheme, the IRs pinching can compensate each other. The proton beam pinches the electron beam, but the electron beam does not pinch the proton beam.
4. An element representation of the “pinching” effect is given on slide 3.
5. Emittance treated as constant/unaffected by pinching [slide 4].
6. Electron beam growth as a result of “pinching” goes down significantly if the electron beam size is larger than the proton beam size [slide 5].
7.  $K = \sigma_y/\sigma_x = 0.09$  might be a disaster, but would like to see simulations to be sure.
8. Can get to  $10^{34}$  luminosity by increasing hadron divergence [slide 8].

### 2 **All other business**

None

### 3 **Draft agenda for Friday, June 12, 2020 from 2:30 to 3:30 p.m.**

1. Simulation results—Friends from Physics
2. Synchrotron radiation update—C. Hetzel
3. All other business

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