

Status of IR-8 Vetoing Efficiency and New Steps

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Status of IR-8 Vetoing Efficiency

- Draft of IR-8 vetoing efficiency on overleaf is ready
- Thinking of PRD journal
- <https://www.overleaf.com/2534154956nhddnyyvghgd#11fd4b>
- Outline
 - Introduction – EIC, EIC 1st & 2nd detectors, and Exclusive Diffractive VM measurements
 - Proposed IR-8 layout – Interaction region and secondary focus feature
 - Far-Forward Detectors – Detector general layout and acceptance
 - Event Generator – BeAGLE and incoherent sample
 - Results – Vetoing procedure , impact of secondary focus, and neutron exit window impact
 - Summary and Outlook – Possible physics cases (ex. pion clouds/diffractive longitudinal structure function)
- Please let me know if you have any comments and feedback. I would appreciate it.

Next Steps

Listing interesting topics with IP-8 (possibly IP-6 too)

- Neutron spin structure from eHe3 scattering Physics Letters B 823 (2021) 136726
 - Polarized He3 beam can be available
 - Do we have eHe3 generator to start with? BeAGLE? CLASDIS?
- Z-tagging at secondary focus (Charles Hyde and Bill Li: EIC Generic R&D)
 - Brought a discussion with Bill Li (Stony Brook) when he gave a seminar at BNL
 - Feasibility is questionable to fit into beam pipe
- Transverse spatial structure of excited states in nuclei (Pawel)
 - Brought a discussion with Pawel at DIS 2024
 - See difference in structure functions measured with tagged final-state in excited/ground state (for structuring of excited target?)

Wanted to see what topic would be beneficial and interesting for IP-6 and IP-8 both I can contribute. I need to study more, but I am interested in eHe3 study.

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