

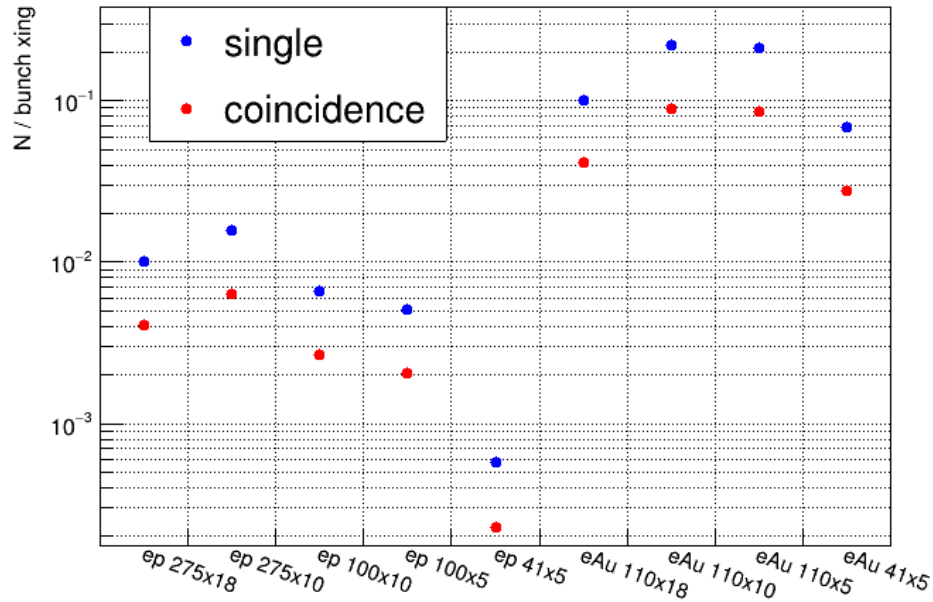
Updated PS Rates

- Follows Bill Schmidke's calculation of the expected rates at the **Sept 1 2022** PS meeting.
- Changes to PS system since then (geometry + converter thicknesses) required a recalculation.
- Main changes to system since then:
 - Larger $Bx \cdot dz$ (1.138 T·m, ~3x higher than ZEUS baseline design) for top electron $E = 18$ GeV.
 - Shorter distance between lumi detectors and analyzer magnet (~1/2 as long).
 - Thin conversion foil (1 mm Al now compared to 1 cm)
 - Sweeper magnet to “sweep” away unwanted conversions.
- Calculation uses CDR values for expected Lumi
- For lower electron energies (10 and 5 GeV), $Bx \cdot dz$ scaled down by 10/18 or 5/18, respectively.

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PS Rates

Updated Calculation



Takes into account conversions from:

- 1 cm Al Exit Window (8% conversion) (swept away)
- 37 m air (9%) (swept away)
- 1 cm Al Vacuum chamber entrance cap (8%) (swept away)
- 1 mm Al conversion foil (1%) (**enters PS**)

Bill's Calculation

