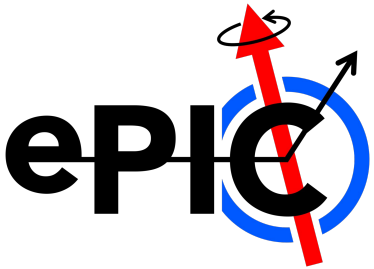
TIC Meeting

Background Impact on Lumi Systems

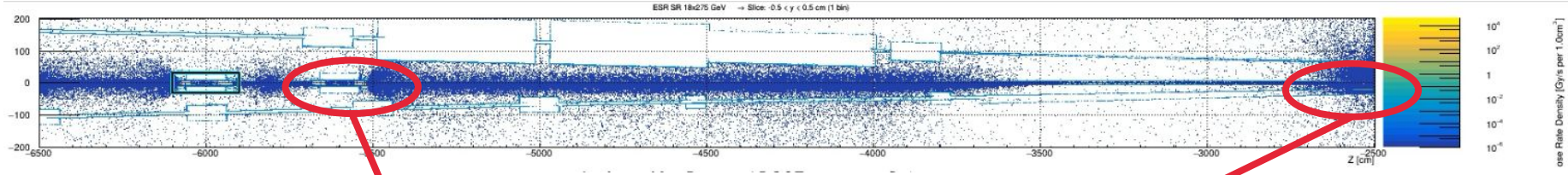
Alex Smith

18th May 2026



Background on the Lumi Systems

- Lumi system nominally in path of SR fan
  - BUT, vertically displaced, specifically 5σ clear of main fan
- See slides here for simulation studies for SR load on front (sweeper) magnet
- Studies indicated shielding around vacuum pipe will be needed
- Dose (once shielding, collimator etc) in place is minimal on PS system
- DPD, higher dose - but studied and evaluated to deal with SR load
  - SR filters built into design too
- Fluence maps not extended to lumi system
  - Neutron rate in the backward direction expected to be low

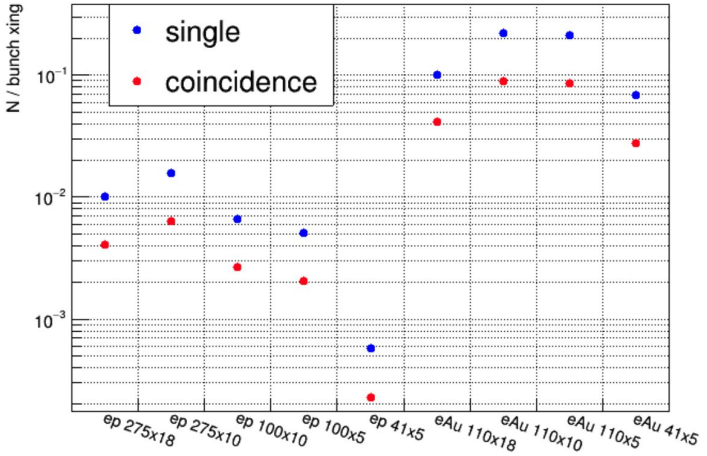


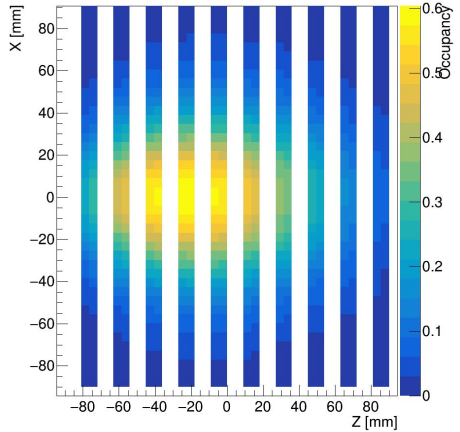
Majority of dose/heat deposited on sweeper magnet and vacuum entrance window

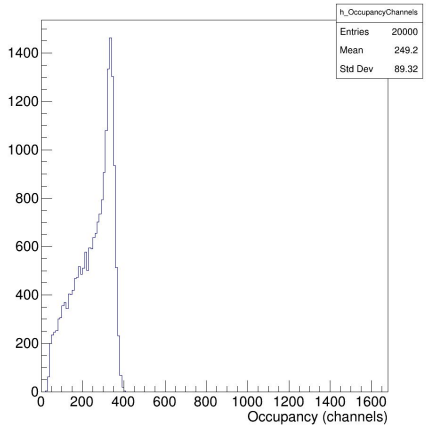
Start at beampipe exit window - 1cm diamond

Background on the Lumi Systems

- Single events are the main source of background at the pair spectrometer.
  - Rate 3x higher than signal
  - Highest rate channels in PS will see ~ 10 MHz rate
  - Potentially ~ 2.5 GHz rate from each detector
- At the direct photon detector a synchrotron radiation filter is sufficient to stop SR background.
  - Slides from Krzysztof
- **Lumi system with have standalone DAQ**







Any questions?