

ZEUS Midterm Plans for Background Studies

Clarification of the beam position and tilt in ZEUS

-need long luminosity run at low enough currents that all ZEUS components can be switched on.

-> Steer beams symmetrically through ZEUS

Positron background:

- What part of the background/chamber currents is from particles and what from SR ?
- Are there other sources of backscattered SR than from -11m ?
- Is the prompt background only from particles or also from SR ?
- Where in the machine are off-momentum positron generated ?

-Long run with positrons only, collect enough statistics to allow plots with various selection criteria.

-Positron only run with deliberately worsened vacuum at specific locations left of ZEUS.

Proton Background :

- Is the source of proton background only due to beam-gas scattering close to the IP ?
- Do we understand the proton beam halo ?
- Is there a contribution from a coasting proton beam ?
- What fraction of the proton background in ZEUS originates from the C5a collimator ?
- Would a 3 mm lead/tungsten shielding inside the beampipe from about -70 cm to about -110 cm increase the background from protons ?
 - Repeat vacuum worsening right of ZEUS with repaired heater for -3m pump.
 - Systematically optimize the proton collimators and do beam scraping.
 - Run with single bunch protons or widely spaced bunches to measure drifttimes.
 - Can HERA detect coasting proton beam ?