How magnet opening affects PVDIS acceptance

Richard Holmes

comment about “Acceptance with 1st round proposed opening”

shows DIS tracks for electrons with Q^2 > 6, W > 2, x > 0.55, in an r vs z view (N.B. _not_ a slice of y vs z) along with some of the PVDIS apparatus.

These tracks are in our acceptance (which is flux detectors at all 5 GEMs, LGC, EC, with additional cuts on r at EC flux detector) and do trigger (using Jin's EC curves and requiring 2 PMTS > 2 PE in the LGC). Black, red, green tracks are from upstream end, center, and downstream end of target.

Trajectories are drawn by connecting the vertex and hits in 9 flux detectors with straight line segments.

Old collar and nose (as in MC) are shown as reddish solid shapes. Proposed collars (with small or large exit apertures, 156 or 164.5 cm) and noses (with small or large upstream diameter, 66.25 or 70 cm) are shown as blue outlines.

This is hot off the press and I want to check it over more carefully before disseminating it further but I wanted you to have a look at it.

You can see the tracks are collimated by the baffle (plate 11 is shown) such that there is a several cm margin between these tracks and the old iron keeping them safely away from the magnetic material. Tracks do not intersect the wide aperture proposed collar or the small diameter proposed nose, but there is little or no margin. Tracks do intersect the small aperture proposed collar and the large diameter proposed nose.

If I've done this right we do see tracks right down to the inside edge of the calorimeter.

Given the lack of any margin between the tracks accepted by the baffles and the proposed enlarged iron I think we have to consider our options carefully.

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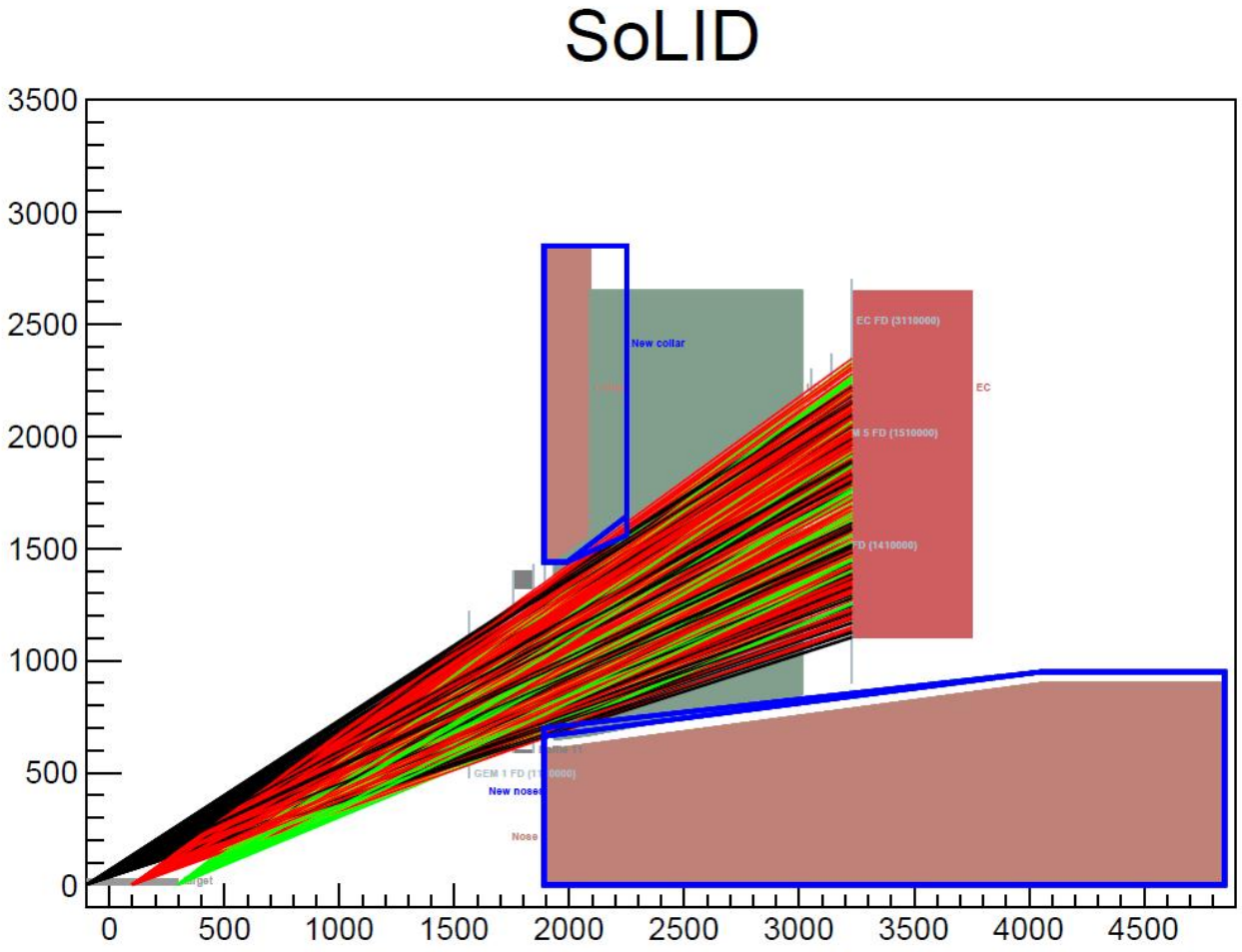

Acceptance with 2nd round proposed opening