Tkr Hits

First look at TkrHits distributions (B. Lott, Aug. 1)

The Tkr hit multiplicity has been observed to exceed significantly that predicted by the Monte-Carlo simulation. This effect has been attributed to low-energy secondary electrons produced in the upstream material, whose thickness is underestimated in the current simulation. The figure below compares the distributions for an early 5 GeV-electron run with the second arm (thickness greater than 10% X0) of the spectrometer sitting in the beam (red, run 811), for a more recent run with the arm out of the beam (purple, run 916) and for the Monte-Carlo simulation (blue, run 122). The three panels correspond to total hit multiplicity (top), hit multiplicity for thin (middle) and thick layers (bottom). A better agreement, although still unsatisfactory, with the MC simulation prediction is found for the recent run with less upstream material on the line. Effort is being made to reduce this material as much as possible.

For completeness, the beam size was different in the two runs mentioned above. It was about 10cmx10 cm in run 811, and 4 cm x 4 cm in run 916.