The upstream detectors and the pions from weak interactions decays

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1 Simulation and results

Our goal was to compare the distributions of $Q$, $Q_x$, $Q_y$, $Q_t$ and $P_{total}$ for all $\pi\pi$-pairs and for all $\pi\pi$-pairs except pairs which have at least one pion from weak interaction decay ($K^0, K^\pm, \Lambda$ and $\Sigma^\pm$, which we call "long lived" pions, whereas the pions from $\eta$ and $\eta'$ are called "long lived" pions and the pions from $\rho, \omega$, ... are called "short lived" pions). All the "long lived" pions were suggested to be created in the target. The coulomb factor was not taken into account. It will show whether such pions from weak interaction decays change the shape of these distributions.

Using FRITIOF the momentum distributions for both kinds of pion pairs were obtained and they were used in GEANT. ARIANE was used for reconstruction.

The results are shown on Fig. 1, 2 and 3.
Figure 1: The ratio of (all pairs)/(all pairs without “weak” ones) for $Q_x$ and $Q_y$. 
Figure 2: The ratio of (all pairs)/(all pairs without “weak” ones) for \(Q_l\) and \(Q\).
Figure 3: The ratio of (all pairs)/(all pairs without “weak” ones) for pair total momentum.