

GEANT4E Track Extrapolation in the Belle Experiment

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We report on the use of the GEANT4E, the track extrapolation feature written by Pedro Arce, in the analysis of data from Belle experiment: (1) to project charged tracks from the tracking devices outward to the particle identification devices, thereby assisting in the identification of the particle type of each charged track, and (2) to project charged tracks from the tracking devices outward to the muon-detection device and then perform progressive Kalman-like track fitting by combining (and correcting) the projected track with the hits in the muon detector. To allow for the combination of GEANT4 detector simulation with event reconstruction in one program, we use the novel technique of merging the GEANT4 and GEANT4E physics lists through the instantiation and use of distinct particles for GEANT4E.

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