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Tracking Algorithms in the Belle II Drift Chamber with first pilot run results

Wednesday, March 21, 2018 3:00 PM (15 minutes)

Belle II - located at the e^+e^- collider SuperKEKB operating at the $\Upsilon(4S)$ energy - starts its first data taking run in February 2018.

Its ultimate goal is to measure with high precision multifaceted quantities in the flavor-sphere and explore the many opportunities beyond, e.g. exotic hadronic states, afforded by its record-breaking instantaneous luminosity of $8 \cdot 10^{35} \text{cm}^{-2} \text{s}^{-1}$.

Belle II's tracking system consists of a DEPFET pixel device with very little material, a fast silicon strip detector, and a drift chamber of more than 2 meter diameter. Performing track finding in this heterogeneous environment at a high rate and with substantial beam background, demands specially designed and carefully implemented algorithms.

This talk will present the algorithms developed for the track finding in the central drift chamber of Belle II in detail. Additionally, first results of the performed pilot runs including tests with cosmic rays will be shown and the performance of the algorithms will be evaluated.

Presenters: BRAUN, Nils (KIT); BRAUN, Nils (KIT)

Session Classification: Session4

Track Classification: 1: Algorithms and theoretical analysis