Hough transform based curling track finding for BESIII:

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In order to overcome the difficulty brought by the curling charged tracks finding in the BESIII drift chamber, we introduce the Hough transform based tracking method. This method is used as the supplementary to find low transverse momentum tracks. Hough Transform is a mathematical method to transform hit in detector to parameter space which can find hits on track using all detector layers. This tracking algorithm is realized in C++ in BOSS (BESIII offline software system) and the performance has been checked by both Monte Carlo data and real data. We show that this tracking method could enhance the reconstruction efficiency in the low transverse momentum region.

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