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Track Fitting for the Belle II experiment

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The Belle II experiment is ready to take data in 2018, studying e+e- collisions at the KEK facility in Tsukuba (Japan), in a center of mass energy range of the Bottomonium states. The tracking system includes a combination of hit measurements coming from the vertex detector, made of pixel detectors and double-sided silicon strip detectors, and a central drift chamber, inside a solenoid of 1.5 T magnetic field. Once the pattern recognition routines have identified the track candidates, hit measurements are fitted together taking into account the different information coming from different detectors, the energy loss in the materials and the inhomogeneity of the magnetic field. Track fitting is performed by the generic track-fitting software GENFIT, which includes a Kalman filter improved by a deterministic annealing filter, in order to reject outlier hits coming from not correctly associated hits by the pattern recognition. Several mass hypotheses are used in the fit in parallel, in order to achieve the best track parameter estimation for each particle kind.
This talk will present the design of the track fitting in the Belle II software, showing results in terms of track parameter estimation as well as computing performances.

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