Contribution ID: **66**   Type: **Parallel**

Track Reconstruction in Belle 2

Thursday 24 May 2012 15:10 (25 minutes)

The Silicon Vertex Detector (SVD) of the Belle II experiment is a newly developed device with four measurement layers. The detector is designed to enable track reconstruction down to the lowest momenta possible, in order to significantly increase the effective data sample and the physics potential of the experiment. Both track finding and track fitting have to deal with these requirements. We describe the outline of the track finding procedure and details of the track fit. An immportant aspect of the latter is the correct treatment of material effects such as multiple Coulomb scattering and energy loss by ionization at very low particle energies. As the SVD is an ultra-light design, non-Gaussian tails in the multiple scattering distributions are non-negligible and have to be dealt with. We present results from a Deterministic Annealing Filter (DAF) and compare its performance to the baseline Kalman filter. Both methods are implemented using the GENFIT package. We describe the various modifications and improvements of GENFIT that are required for a successful application in the Belle II environment.

Student? Enter 'yes'. See http://goo.gl/MVv53

yes

Author: Mr NADLER, Moritz (Austrian Academy of Sciences (AT))

Co-authors: LETTENBICHLER, Jakob (HEPHY Vienna, Austria); FRUHWIRTH, Rudolf (Austrian Academy of Sciences (AT))

Presenters: LETTENBICHLER, Jakob (HEPHY Vienna, Austria); Mr NADLER, Moritz (Austrian Academy of Sciences (AT)); FRUHWIRTH, Rudolf (Austrian Academy of Sciences (AT))

Session Classification: Event Processing

Track Classification: Event Processing (track 2)