ACTS-CEPC meeting 2019-7-7

A quick recap

- Models are mostly provided, except for TrackFinding package
 - ACTS-Core : Some functions/tests need Improvements and some more wise validation
 - Framework : More details check for Kalman fitting test



Some details

- ACTS-core :
 - finished adding time information in EDM and propagation
 - TrackFinding Kalman filter
 - A basic "Track" class just vector<TrackState> currently
 - Multitrajectory(long vector track state) is almost finished this is for KF and GSF
 - Measurement surface is going to be considered in propagator
 - Outlier/hole logic is going to added in the basic Track class
 - The logic "When smooth back" is still be in progress

- Propagation
 - Refactored Navigator (in progress)
 - Make the logic more clear
 - Fix the overstepping problem
 - More implicit interface of Navigator between Stepper to simplify the Stepper and the MultiStepper
 - Future : -> Finite State Machine
 - Material Effect : split the pre/post/full mode of material updating
 - Improvement in acts-core unit test
 - Move the Navigator
- Some details improvement in Vertex fitting

• For GSF part

1. Migrating the Smooth part from ATLAS to ACTS (currently)

2. Review and rebuild with new Navigator and Multitracktory EDM when prepared

3. Build the GSF example in framework – very likely to KF

4. Produce electrons with Geant4 to replace FATRAS as validation

- Acts-framework
 - Kalman example check
 - Some interesting details from recent result



https://indico.cern.ch/event/833313/c ontributions/3491766/attachments/18 74750/3087233/KalmanFitter_filtering _Jul2019.pdf

- Material mapping : a summer school student will work on the validation and improvement of the procedure in this field nowadays
- Some other improvement and optimizations

Problem: biased pull for filtering

For CEPC

- Shall we come to the TPC geometry construction?
 - There would be a new type of surface for TPC
 - I have not gone through the very details yet...