Develop some tracking tools

Xiaocong Ai

Feb 8, 2022
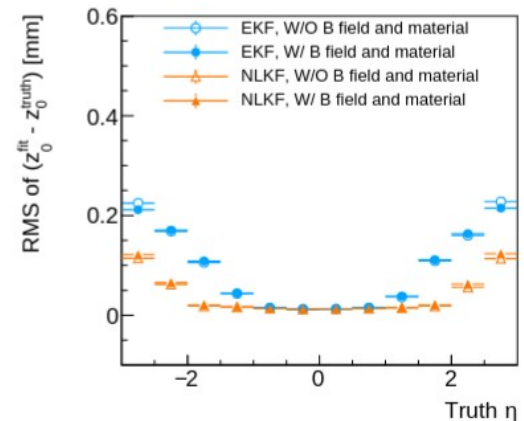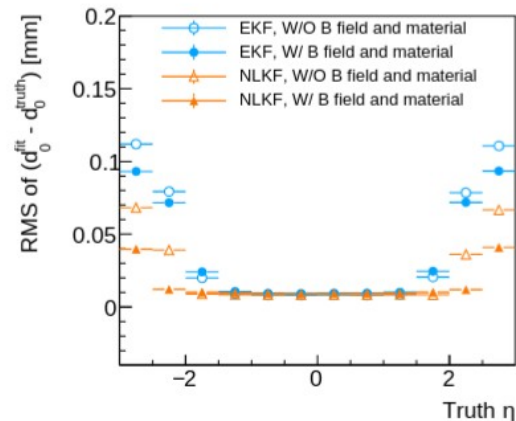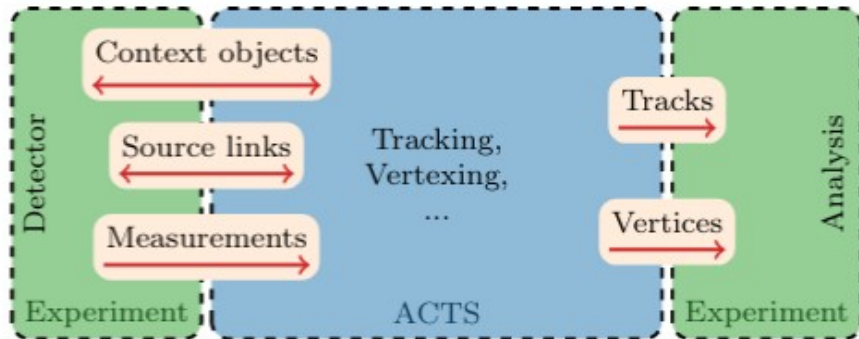
Developing A Common Tracking Software

- ACTS project aims at making a detector-independent tracking toolkit   *arXiv:2106.13593v1*

- Core developer of (Kalman Filter-based) track fitting and track finding algorithms
    - Being used by ATLAS, ALICE, FASER, EIC, sPHENIX ...

- Developed KF-based alignment prototype

- Recently developed an extension of KF for non-linearity correction (with Nick et al.)

- Collaborating with Bonn University for developing a global chisq fitter   *arxiv: 2112.09470*

Other tracking activities

- Developed a GPU-based KF (with Georgiana, Nick et al.) *Comput Softw Big Sci 5, 20*

- Tracking activities in my earlier days (removing the "blockers" brought by the special ITk Strip endcap geometry)

  - Developed the first tracking code for reconstructing ITk radial strip testbeam data

  - Make ITk tracking running in Athena release 21.9