

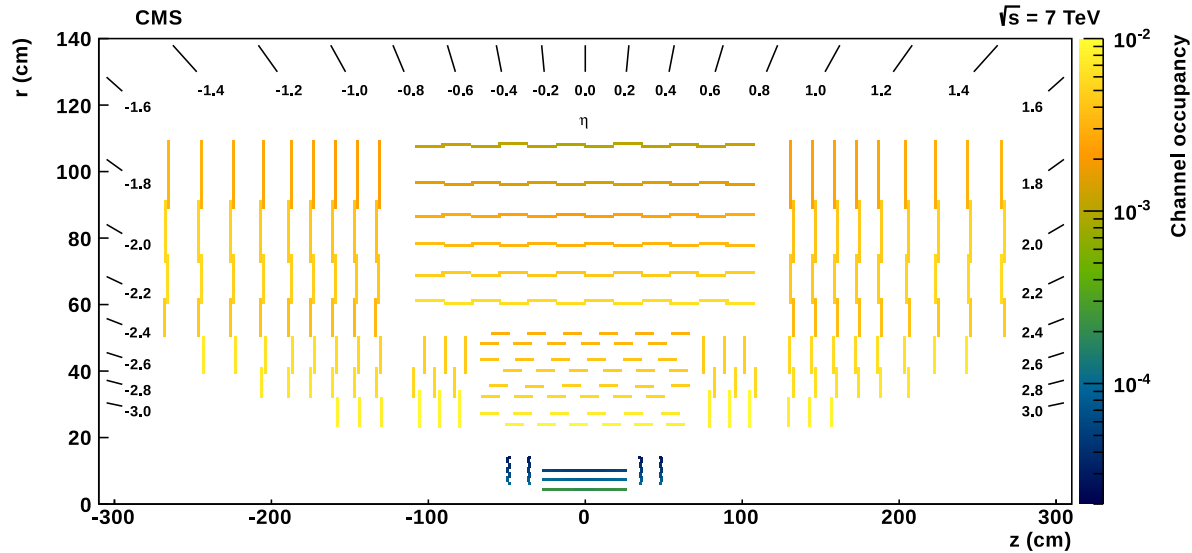
D1: Track Reconstruction based on Cellular Automaton

(Frankfurt group)

I. Kisel

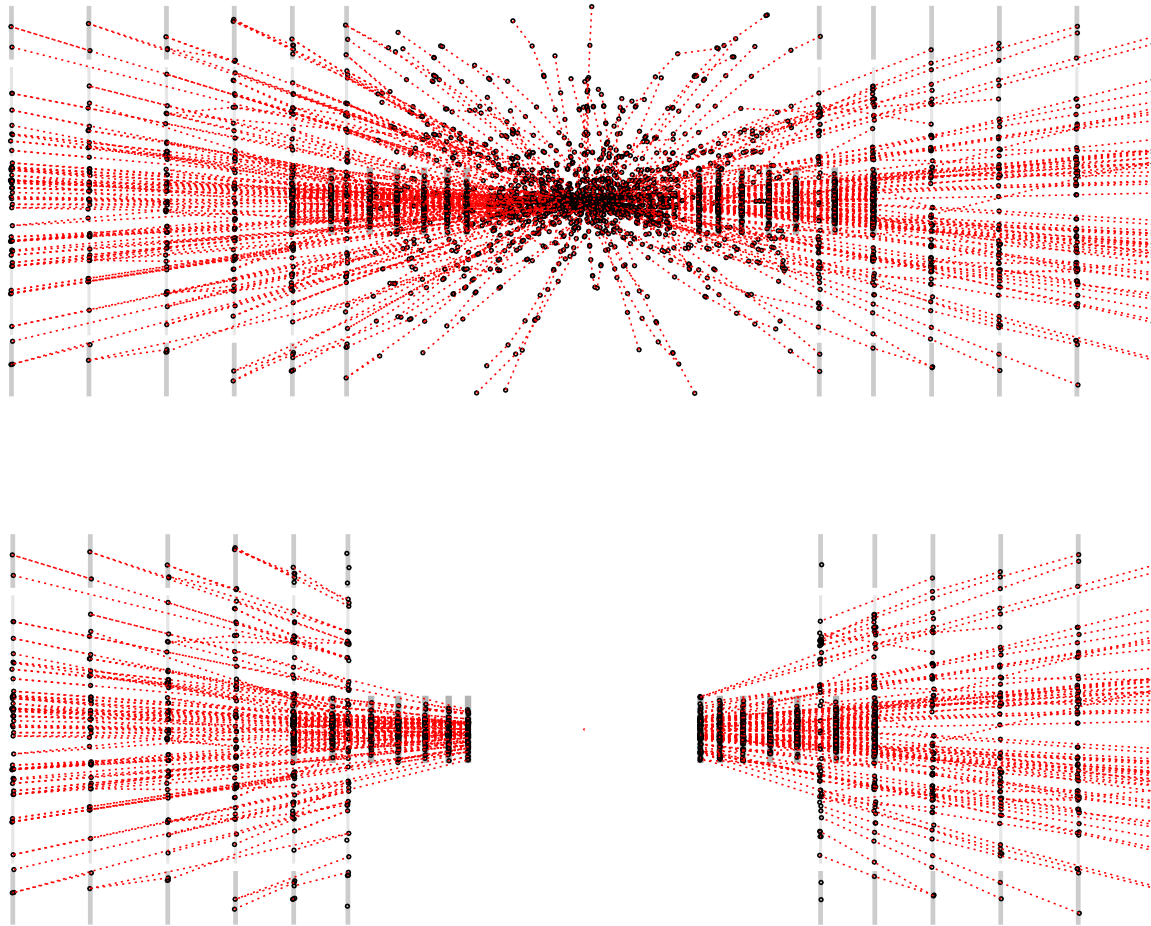
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ACTS (CMS?) Geometry



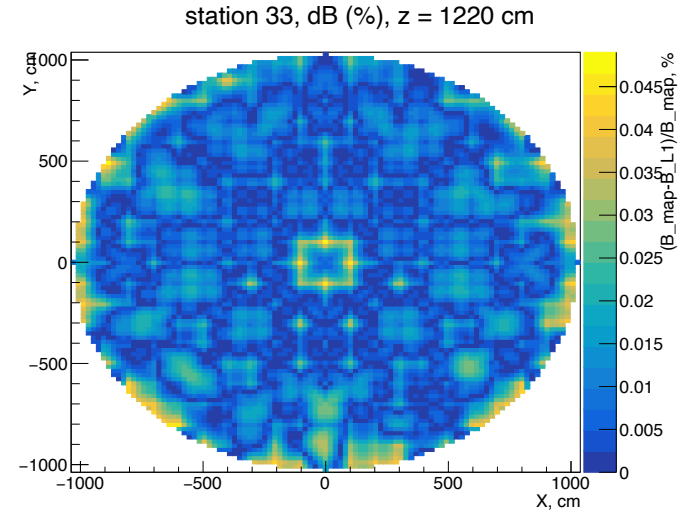
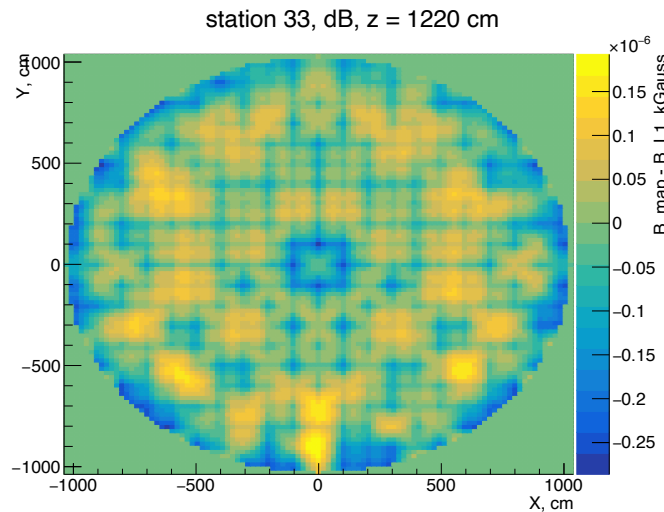
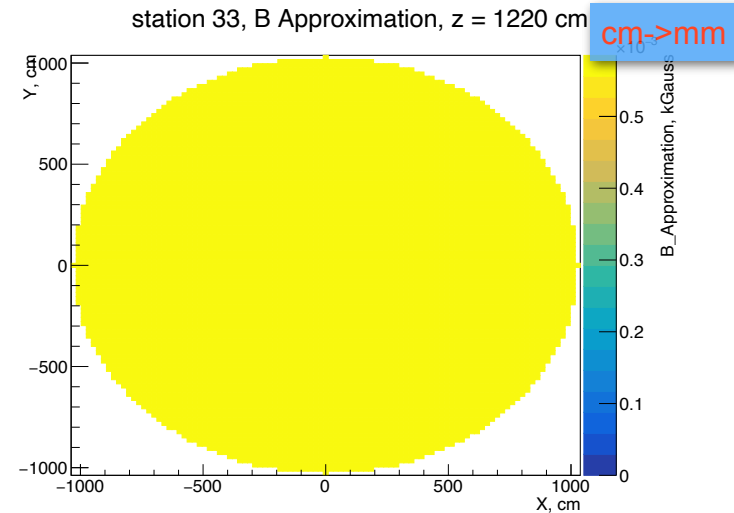
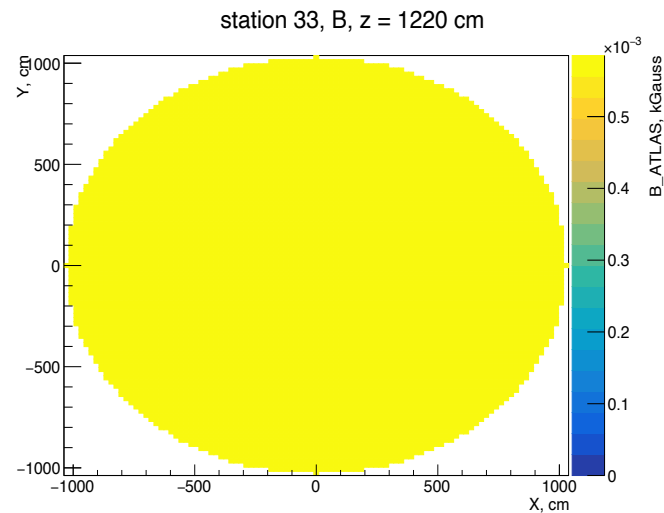
- Can we emulate a real experiment?
- Can we run the software of that experiment within ACTS?
- Can we then compare the results?

ACTS Simulated Event



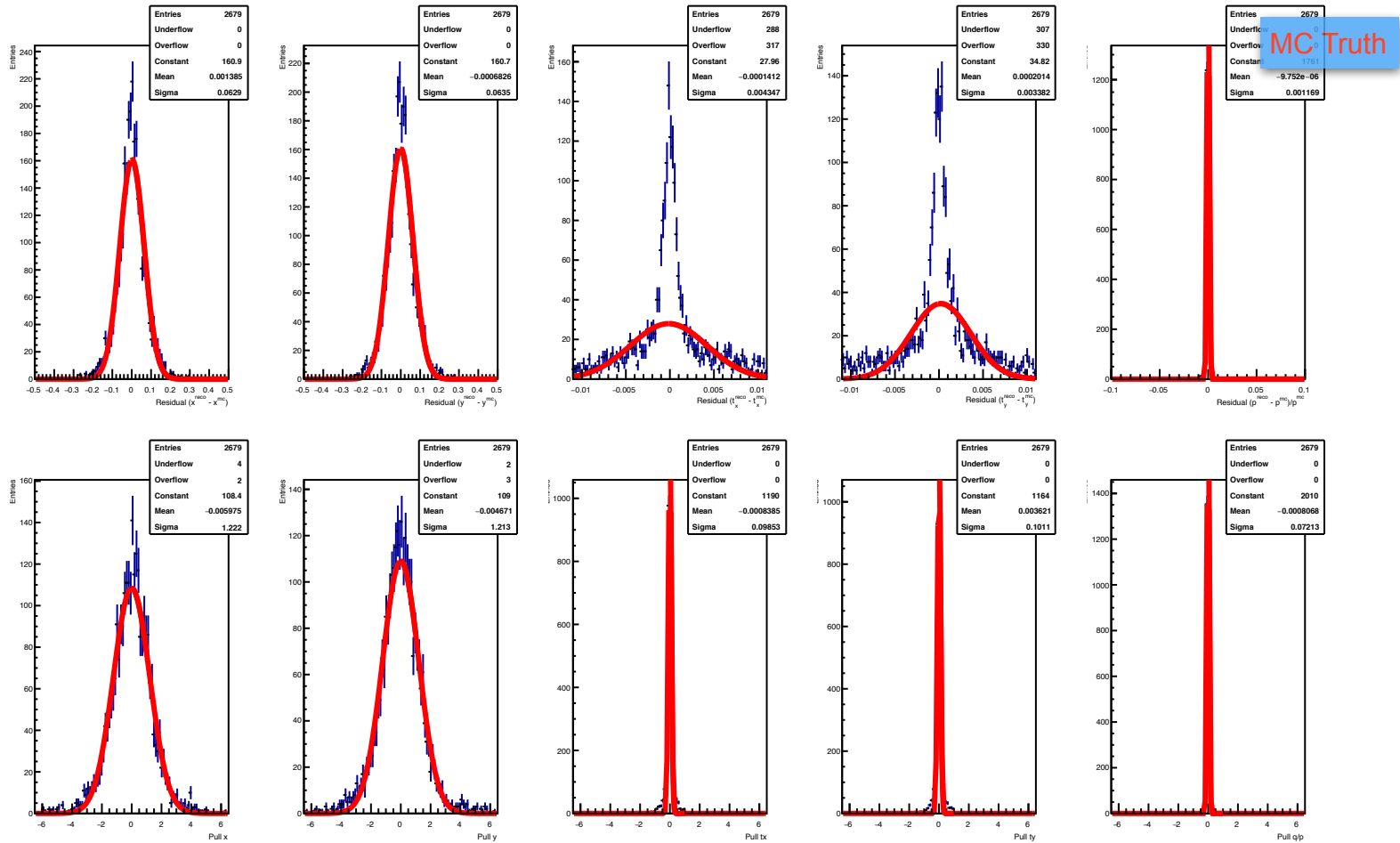
- What type of physics is investigated?

ACTS Magnetic Field



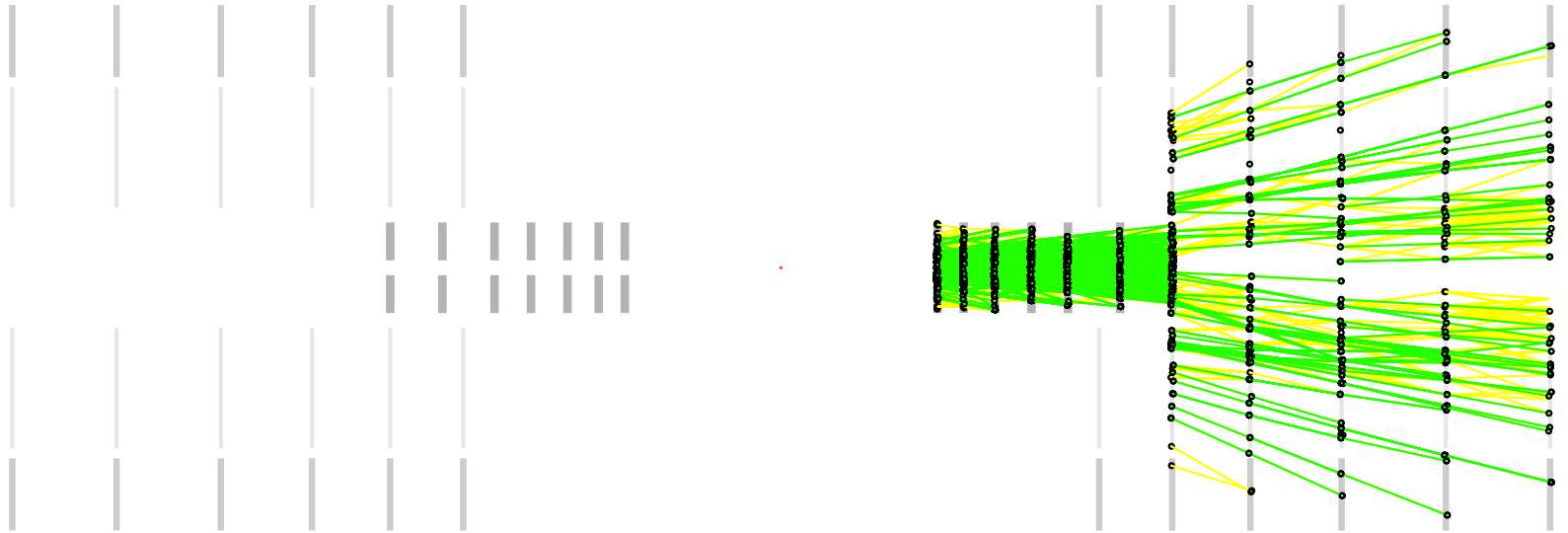
- Magnetic field is approximated locally at each station
- Approximation with 5-th order polynomial
- Magnetic field between stations is calculated using parabola (triplet fit)

ACTS Kalman Filter Track Fit



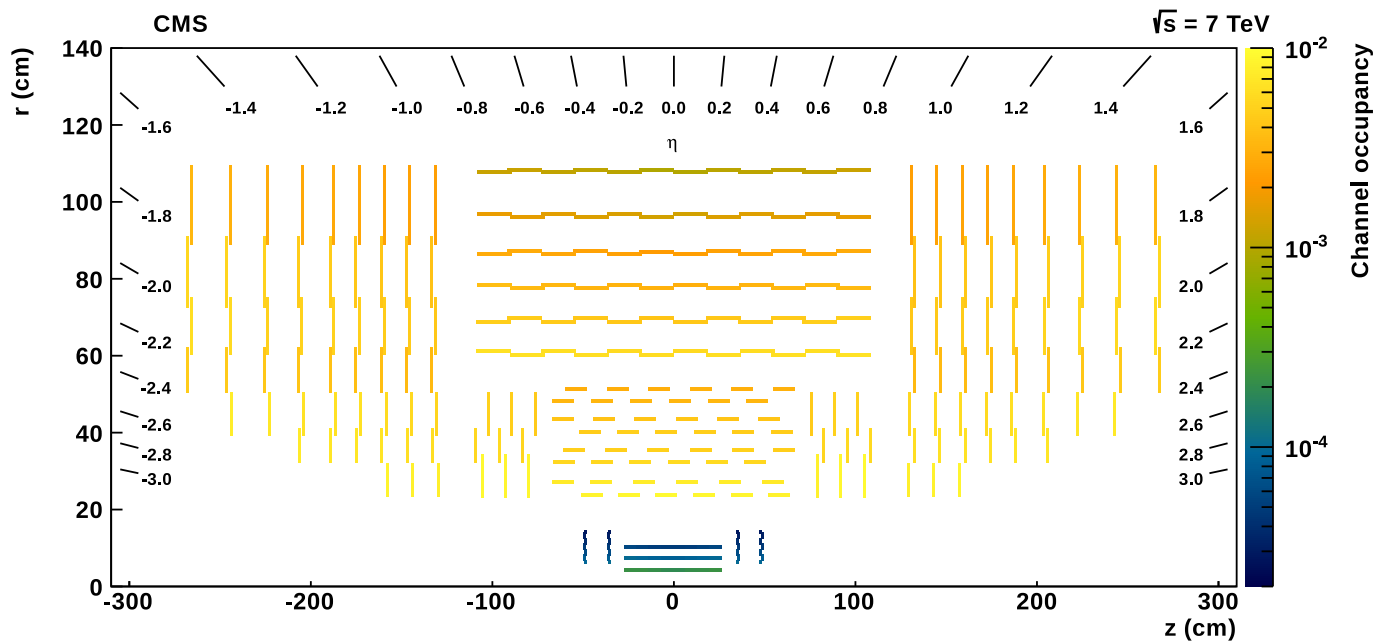
- Working with material budget (multiple scattering)

ACTS Reconstructed Event (Triplets)



- Currently at the level of triplet search

Summary



- Progress in understanding the detector geometry and simulation procedures.
- Adaptation of the magnetic field approximation algorithms has been completed.
- Kalman filter is in the stage of debugging of multiple scattering.
- Track search works up to the stage of triplets creation and links between them.
- The generalized model creates many uncertainties, in particular the lack of ability to compare with working algorithms.