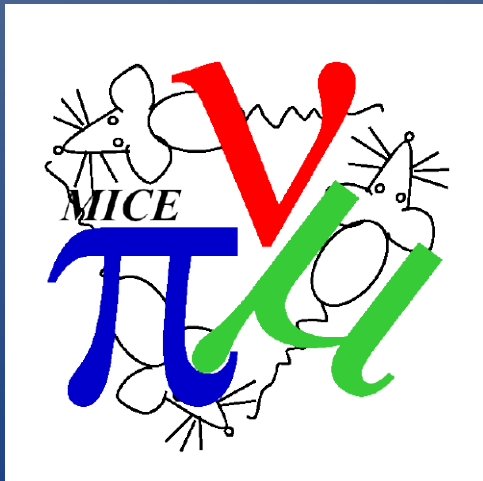


# Global Reconstruction Update

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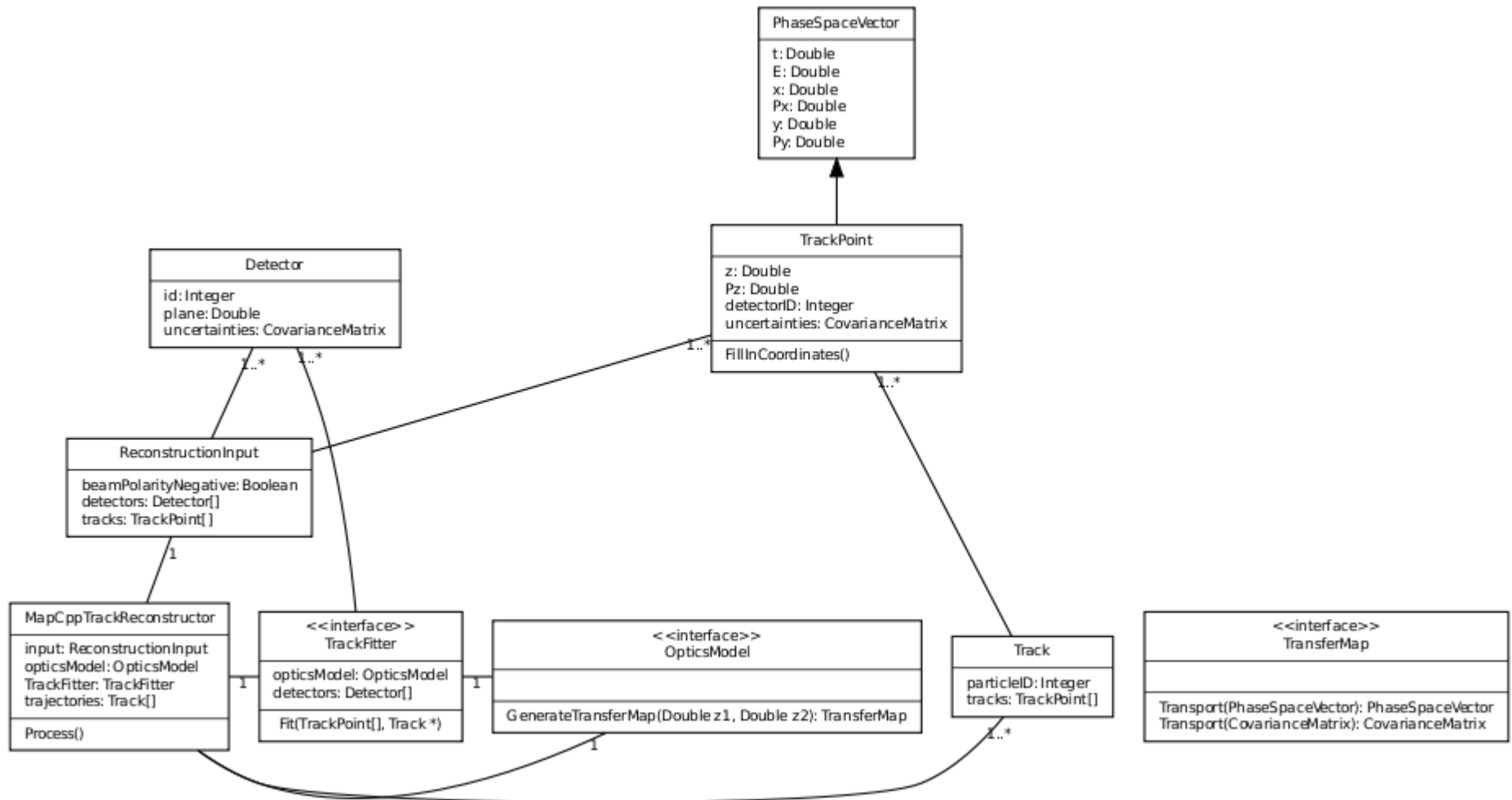


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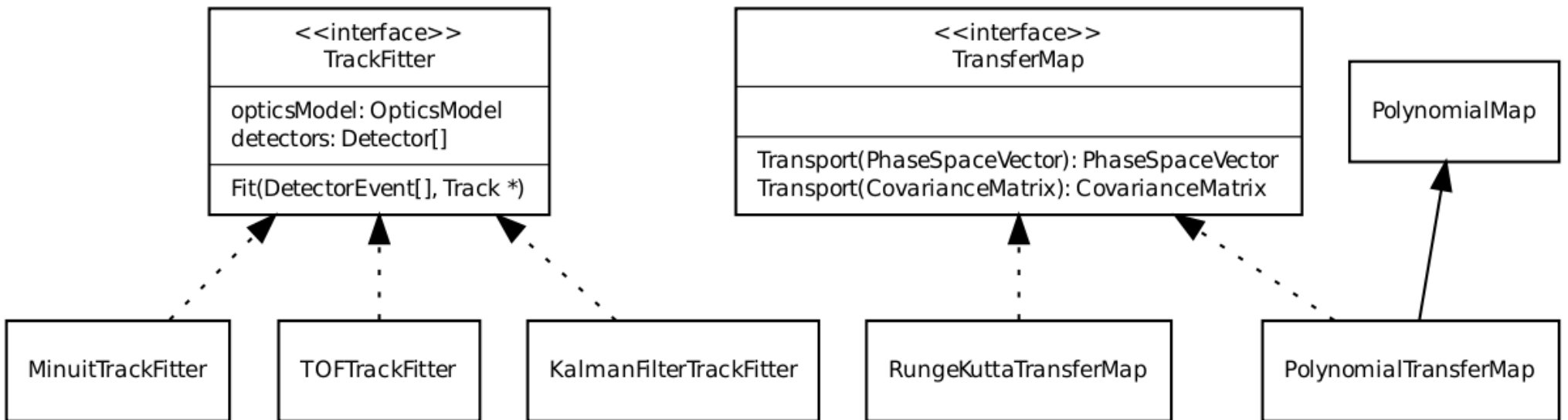
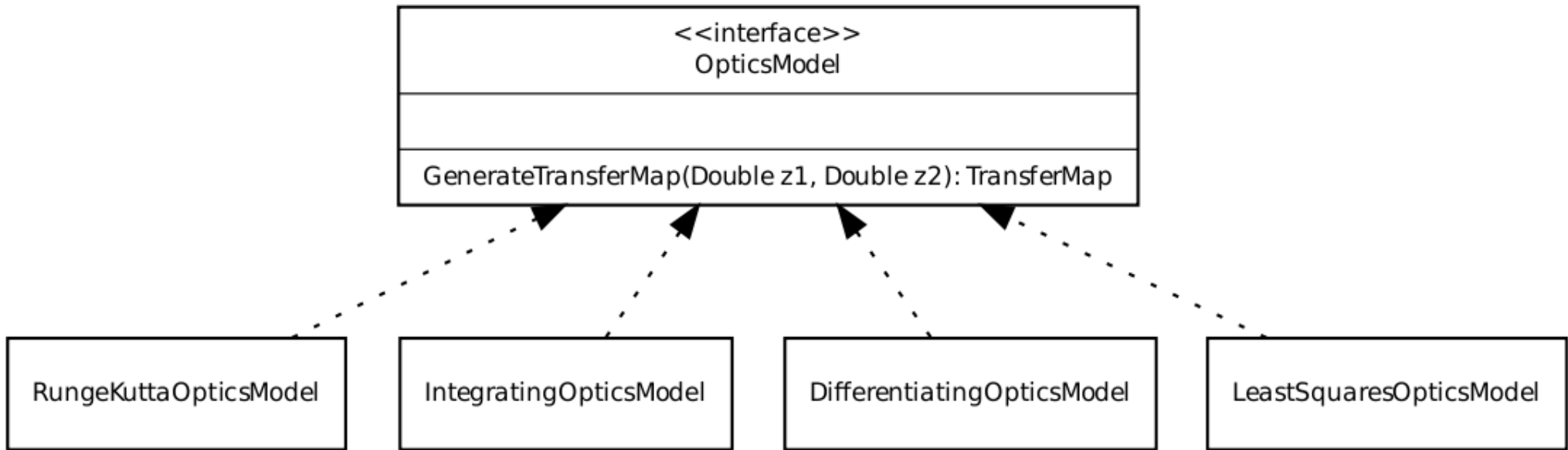
# Current Global Reconstruction Tasks

- Designed abstract framework for using multiple optics models and fitting algorithms.
- Testing framework with crude linear approximation reconstruction implementation

# Framework Class Hierarchy



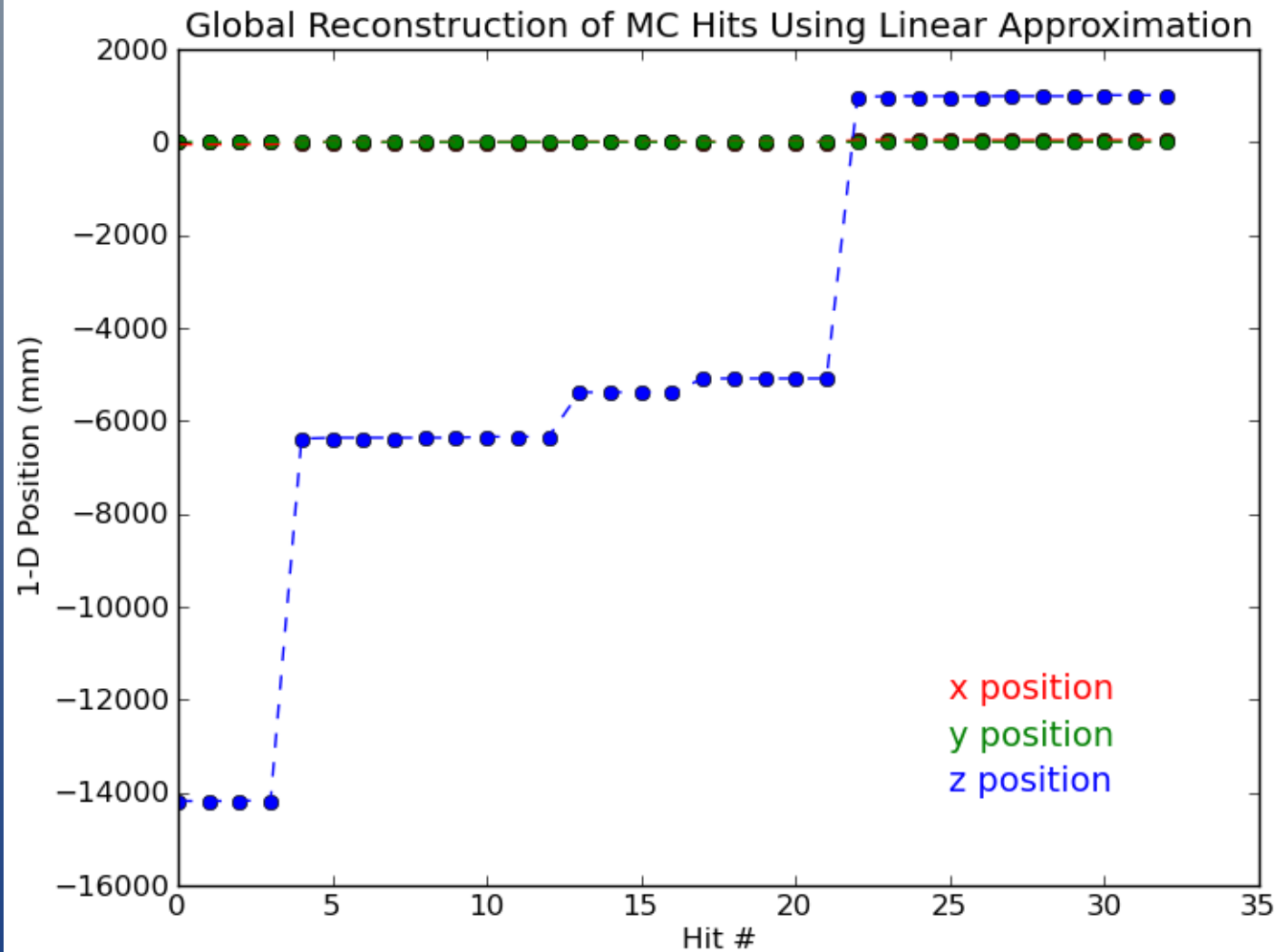
# Framework Interface Hierarchy



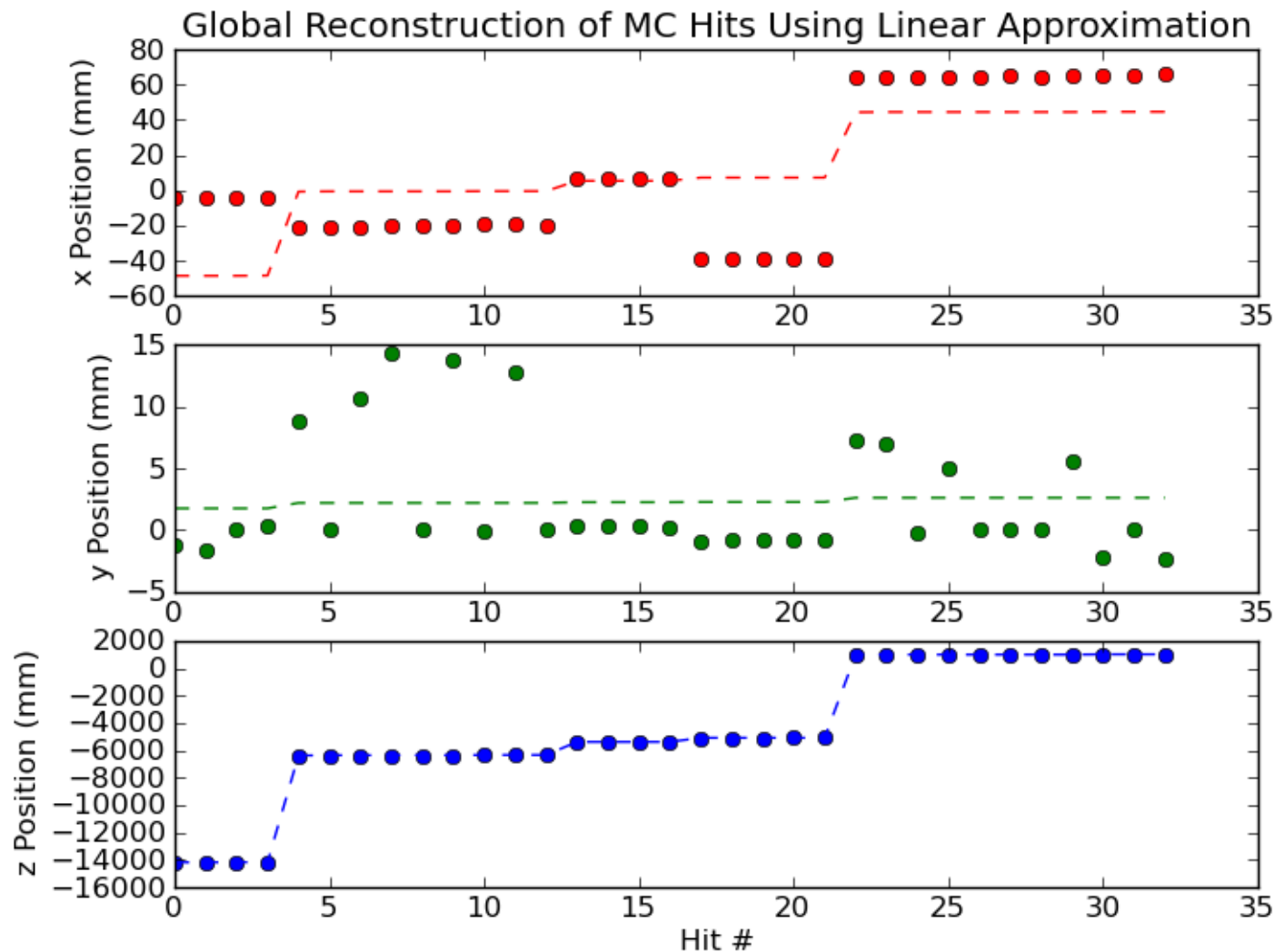
# Global Reconstruction of MC Hits Using Linear Approximation

- Perform linear approximation between start plane and desired end plane using momenta of input particle as slopes
- Use TMinuit to minimize the sum of the expected residual errors
  - $(v_m - v_c)^T * M_E * (v_m - v_c)$
- Having problems with geometry and generating MC SciFi hits
  - <http://micewww.pp.rl.ac.uk/issues/995>
  - <http://micewww.pp.rl.ac.uk/issues/996>

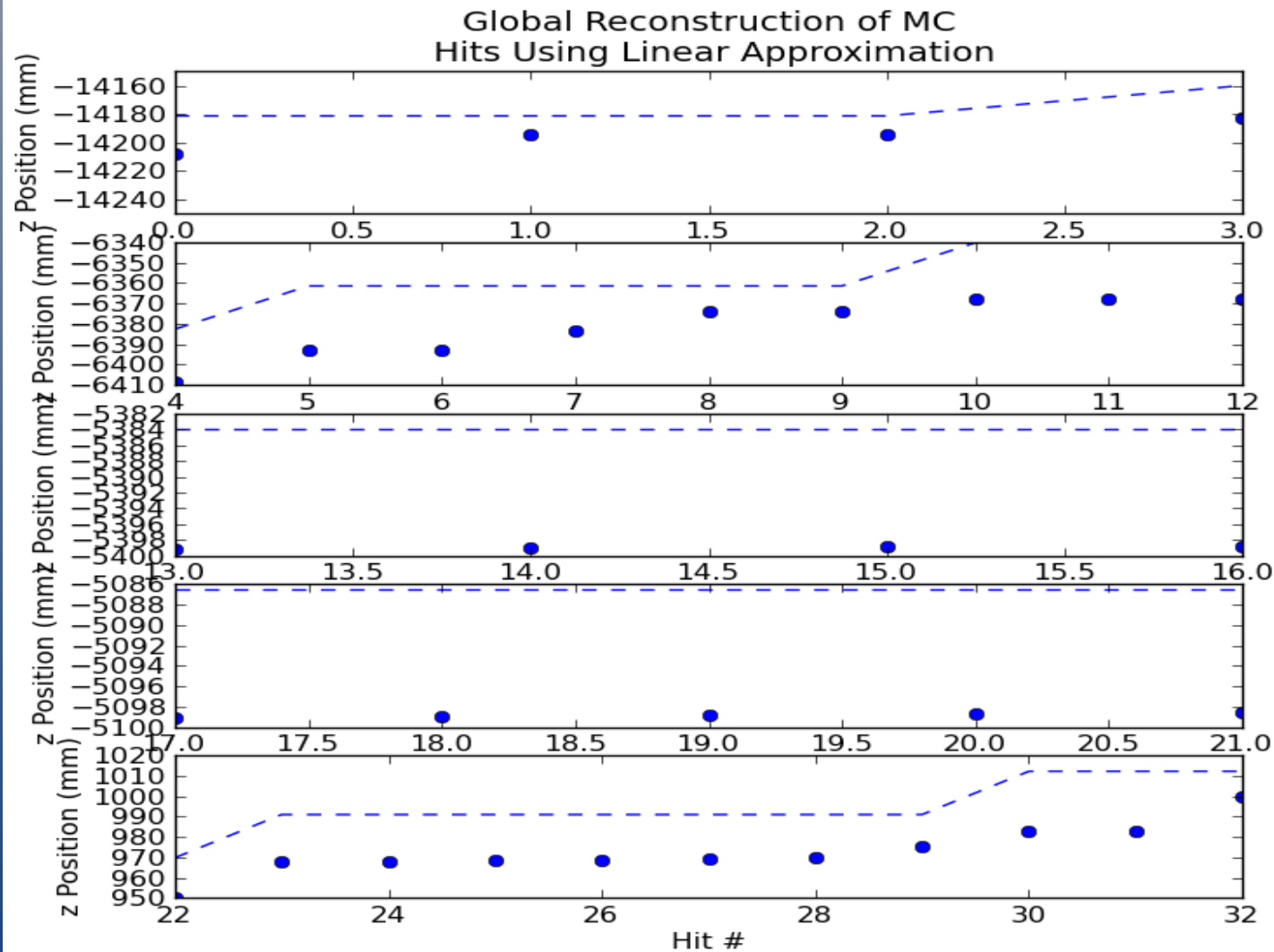
# X, Y, Z: Same Scale



# X, Y, Z: Independent Scales



# Z Broken Into Segments





# What I had planned for today

- Generate multi-particle MC data
  - MC hit generation problems
  - Generated just TOF hits
- Smear multi-particle MC data
  - Can't figure out how to generate MC and reconstruction virtual hits in the same process
- Load and reconstruct multi-particle MC data
- Plots of MC truth, smear, reconstructed, and residuals

# Next Steps

- Need to get more help with SciFi hit generation
- Finish linear approximation “proof of concept”
- Incorporate tracker group's Kalman Filter into global reconstruction framework