

Global Track Matching and Optical Alignment

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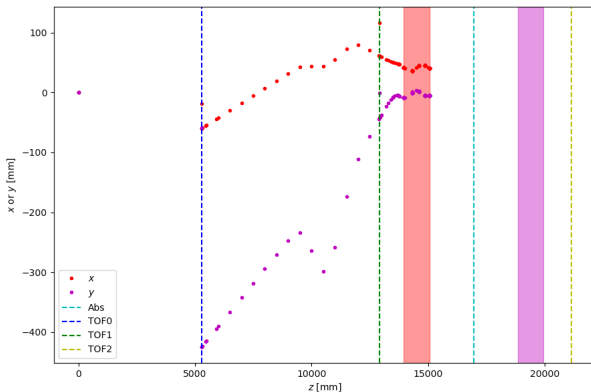
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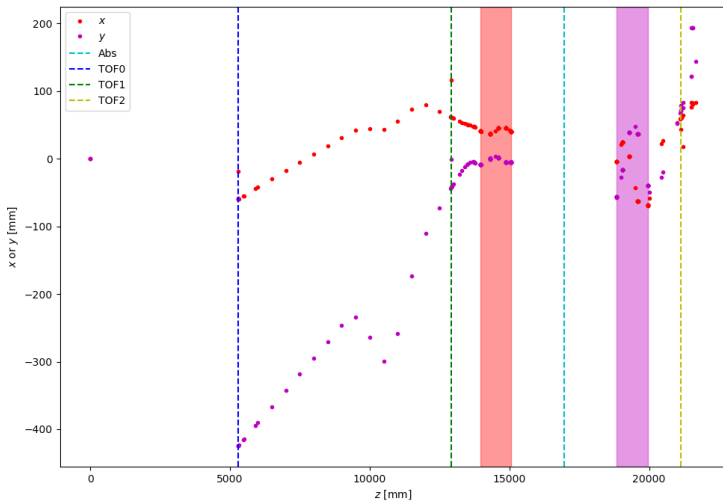
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Currently in globals

Track matching performed on US and DS tracks to form through tracks. UTracks propagated backwards from TkU (station 1) to TOF0. Also propagated through absorber into TkD for track propagation. Extra data points at virtual detectors.

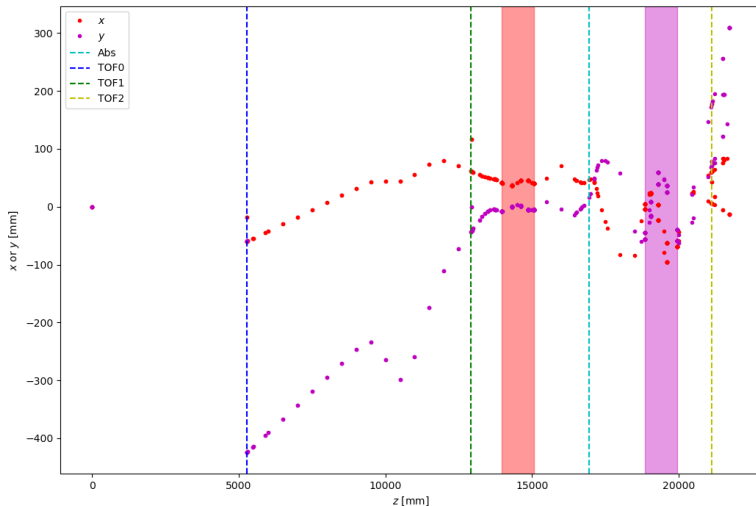


DS tracks are propagated from TkD station 1 downstream to EMR.



Through Tracks

Through track then formed from propagation of UStrack through absorber.



What about Optical alignment?

We would want to check that the alignment of the solenoids in the geometry is correct i.e Monte Carlo matches the data.

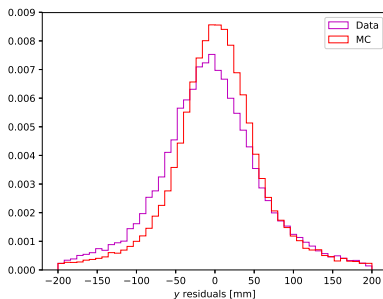
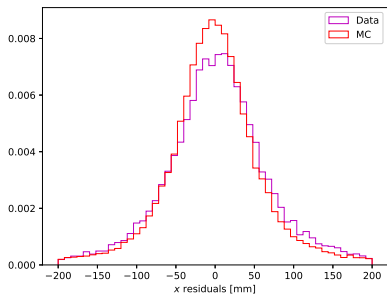
Along with the propagation of UTracks through the absorber, we would also like DTracks to be propagated upstream through the absorber and maybe even further upstream. Store this information in DTrack.

Field alignment can be checked by looking at the residual in x and y positions of particles between propagated UTracks and DTracks.

This is what I'll be working on when MAUS wants to play ball...

For now

Can look at field alignment DS by checking the residuals between TOF2 detector hits and DStracks propagated into TOF2.



Run 10052 data and official Monte Carlo.

By keeping the reconstruction geometry the same and changing the rotation/position of the fields in the simulation geometry, the effect on the residuals can be observed.

From this information can we deduce the correct field alignment?