

Preliminary Analysis of Commissioning Data from July'16

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Intro

- We focused on 140 MeV/c runs in July (in particular 8154)
- The analysis of the data was performed using reconstruction scripted developed by C. Hunt for his thesis (work was mainly done by H. Banks in the framework of UROP summer project).

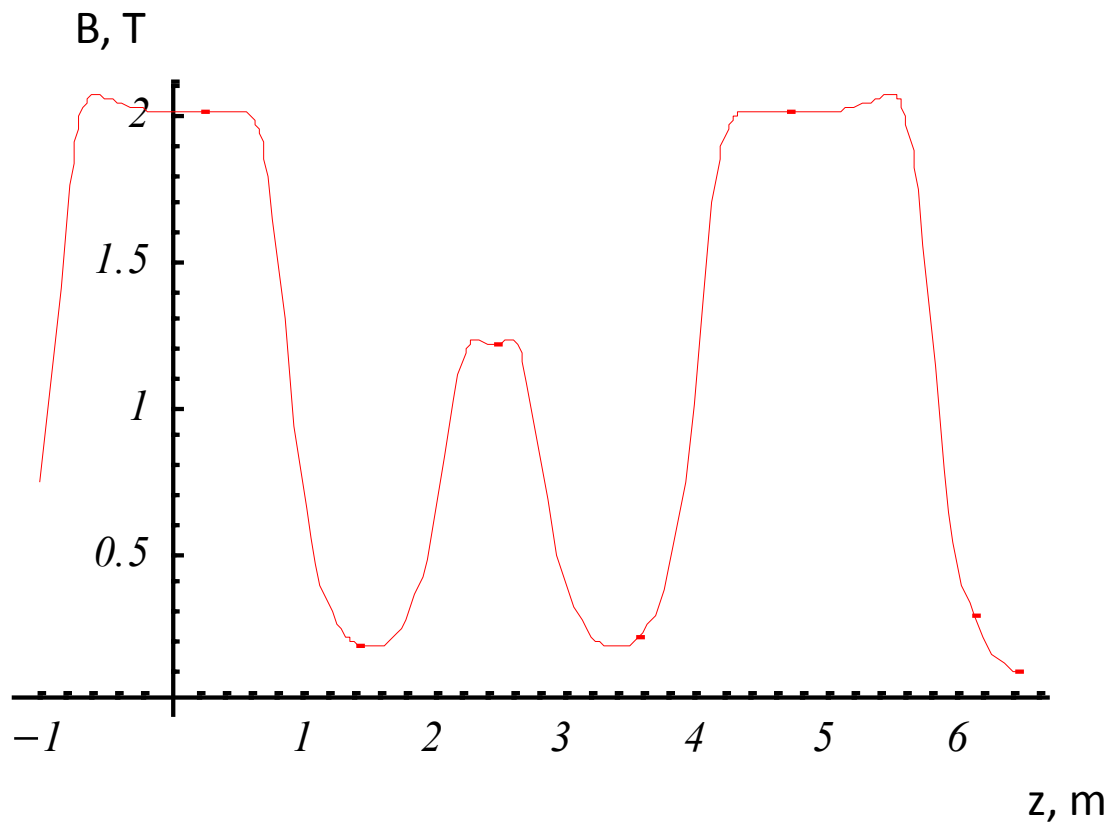
Description of the setting

- Beamline:
 - pionic at 140 MeV/c
- Cooling channel:

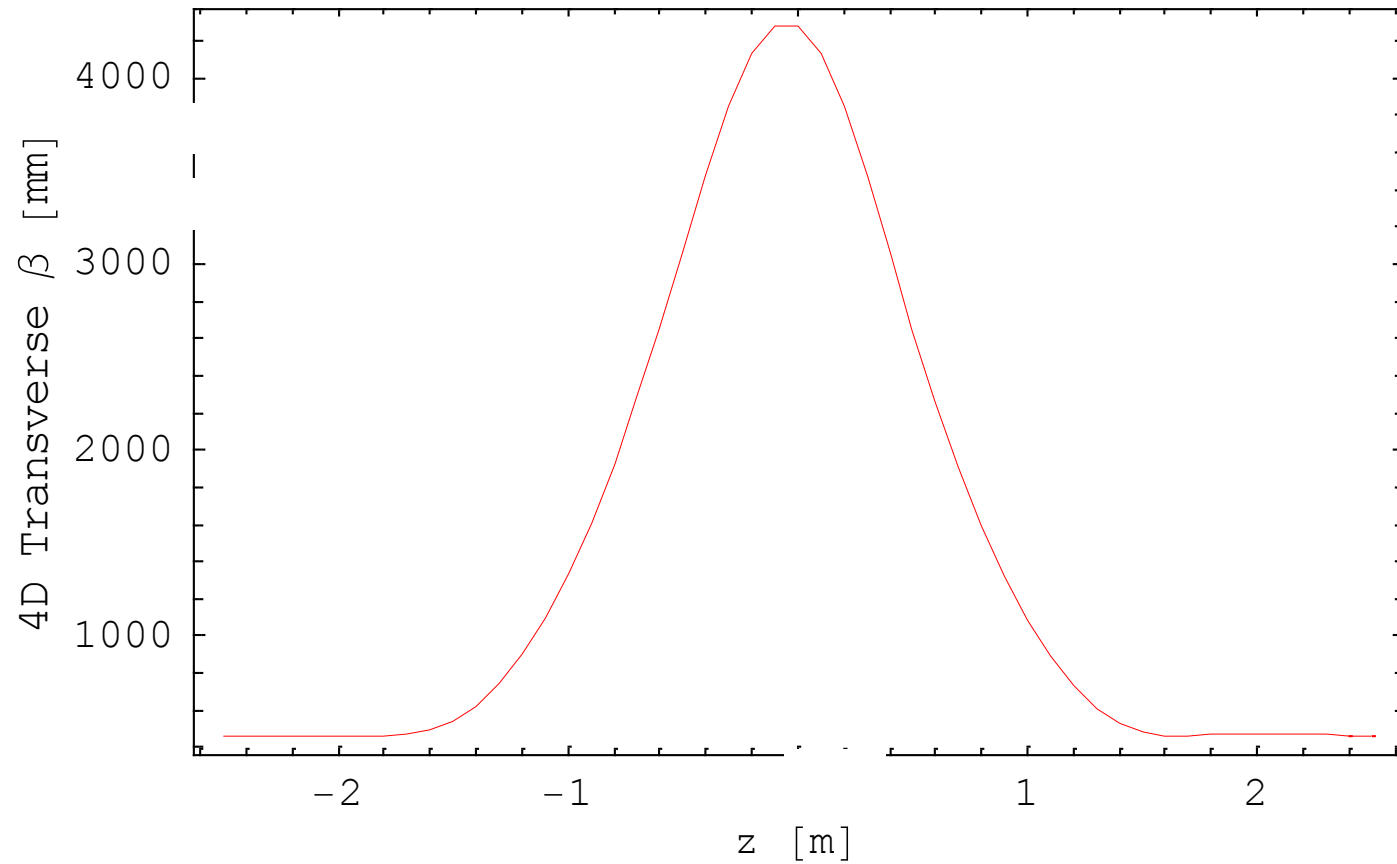
Currents in A

Setting	E2u	Cu	E1u	M2u	M1u	FCu	FCd	M1d	M2d	E1d	Cd	E2d
Sol_140_noMs	140.0	140.0	140.0	0.0	0.0	44.68	44.68	0.0	0.0	140.0	140.0	140.0

B field



Design Optics, 140 MeV/c



Beta in the middle of SS: 46cm.

Cuts

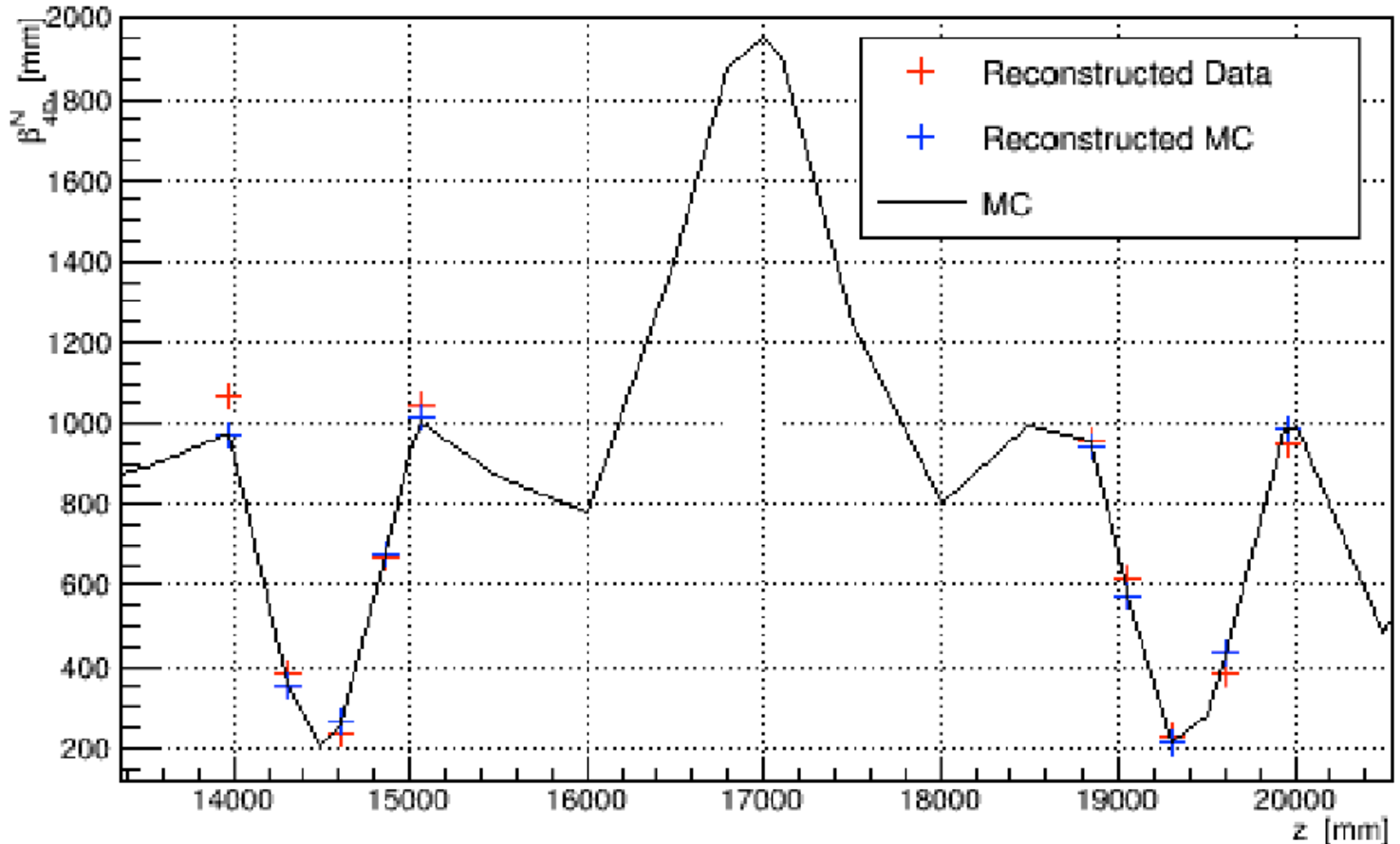
- TOF0-TOF1 cut
- P_{tot} cut (130-140 MeV/c) ?
- P-value cut
- Only tracks recorded in all Stations (in both Trackers)
- No momentum corrections.
- More details in the note (in preparation)

Reconstruction, beta

Run 08154

Trackers 0-1: Stations 1-5: Plane 0

Reconstructed Normalised 4D Beta

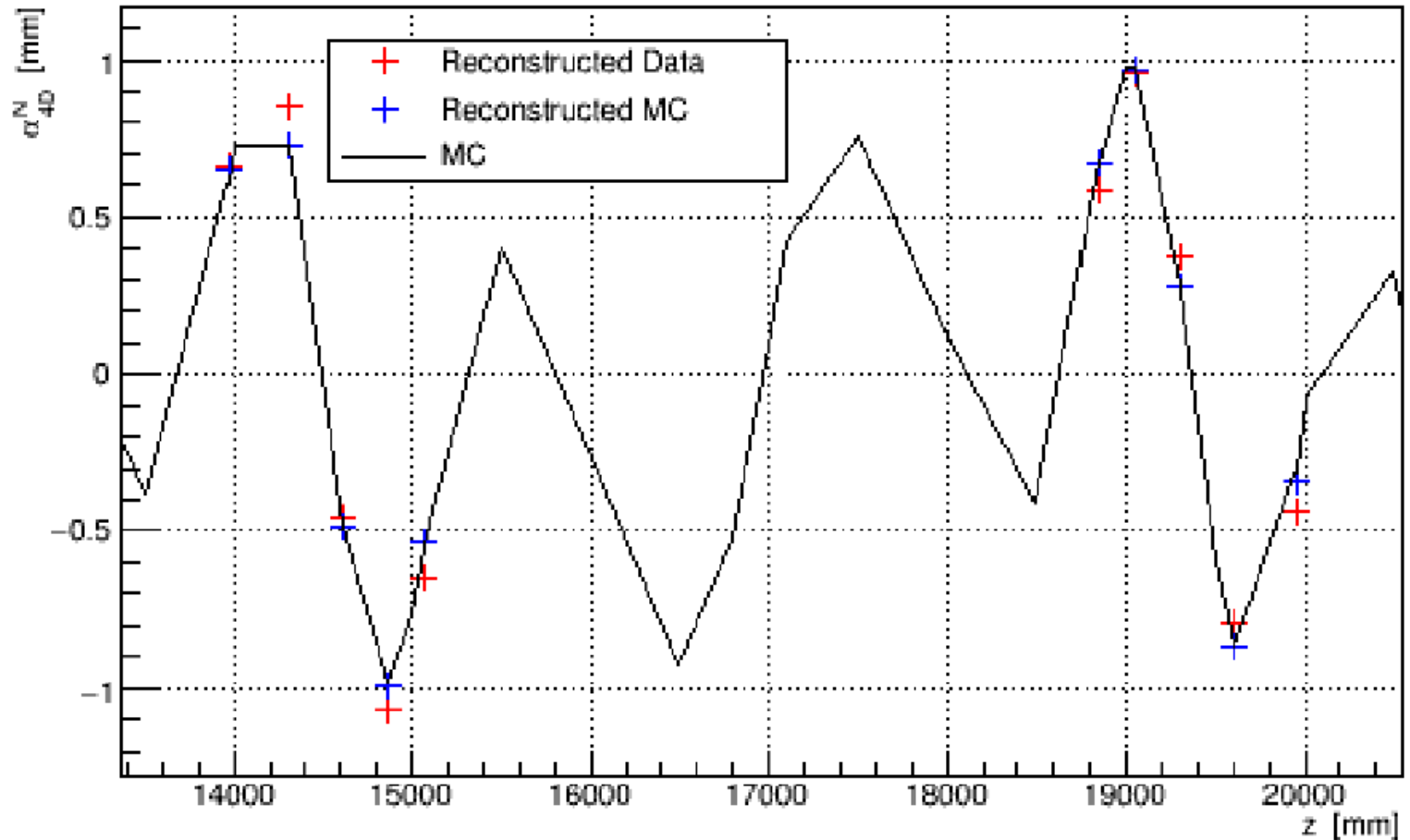


Reconstruction, alpha

Run 08154

Trackers 0-1: Stations 1-5: Plane 0

Reconstructed Normalised 4D Alpha

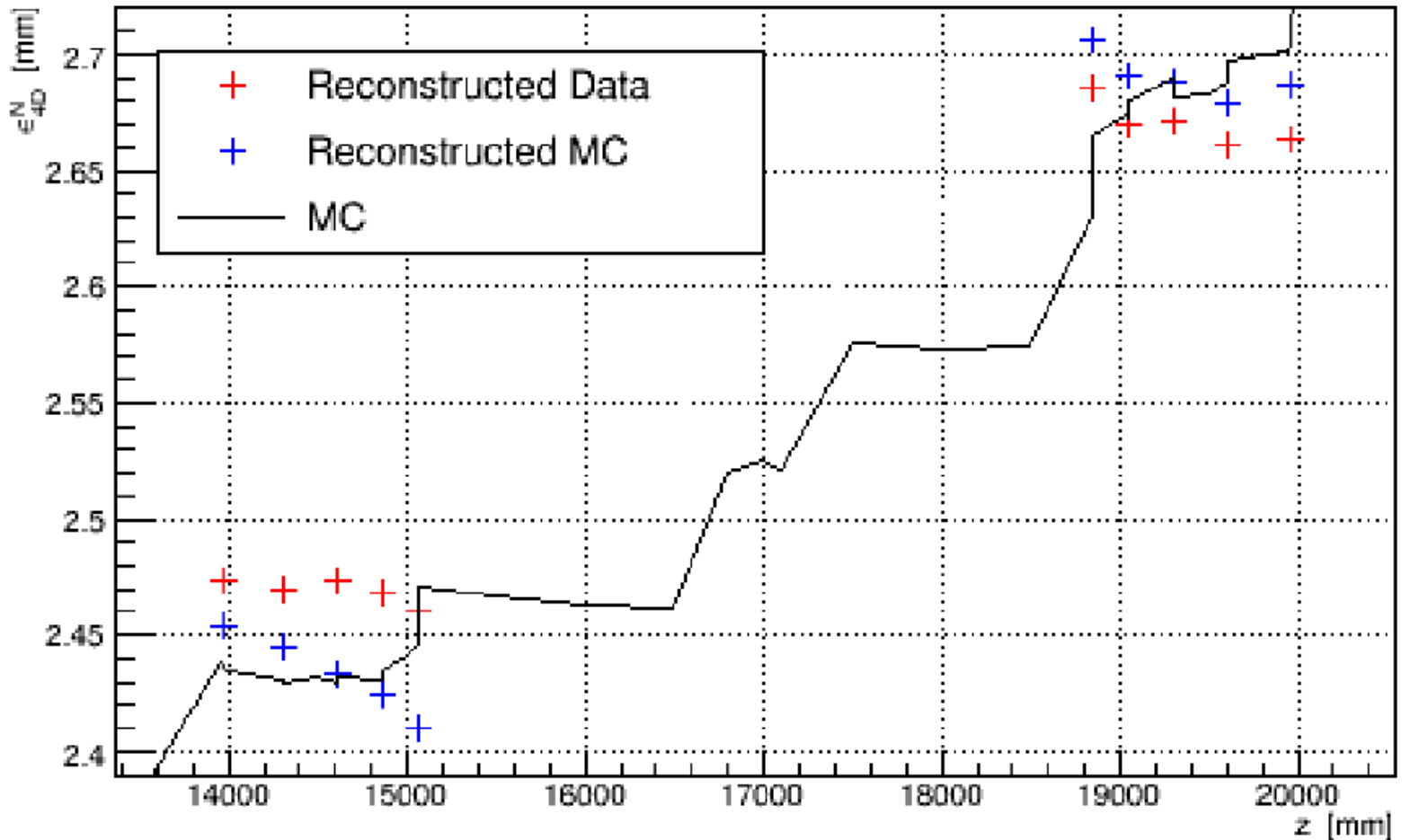


Reconstruction, emittance

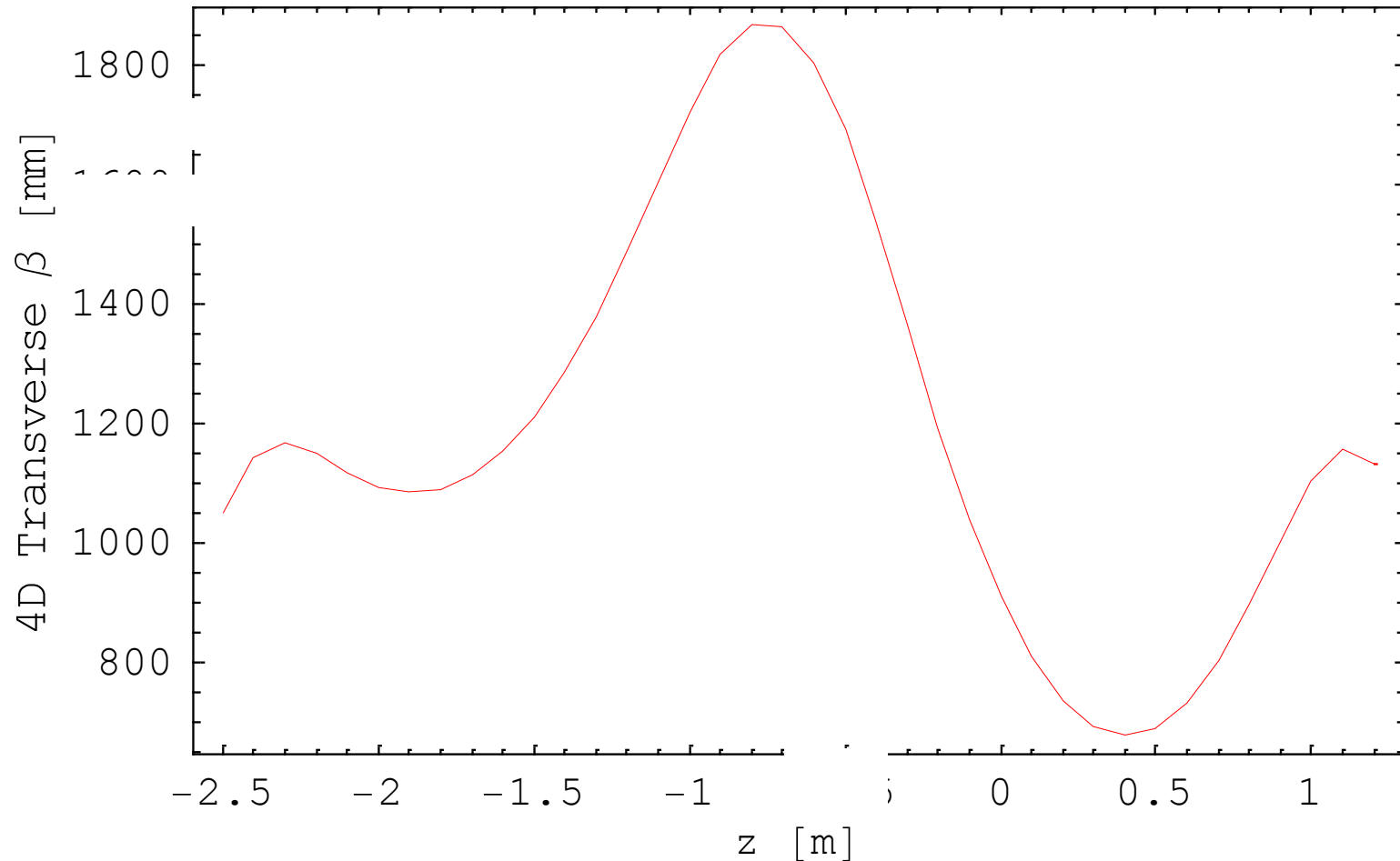
Run 08154

Trackers 0-1: Stations 1-5: Plane 0

Reconstructed Normalised 4D Emittance



Optics between reference planes with reconstructed starting values (zero Can. Ang. Momentum)



Conclusions

- MC, Reconstructed MC and Data show relatively good agreement on Twiss parameters
- Agreement on emittance is not that good, but still reasonable.
- Significant optics mismatch from the beamline is obvious -> we need to try to improve here.
- Optics calculations with reconstructed Twiss confirm the general behaviour, but need to be further studied. May be an indication of non-zero Canonical Angular Momentum?