

Global Track Reconstruction

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MICE Collaboration Meeting 41

Rutherford Appleton Laboratory

Track Matching

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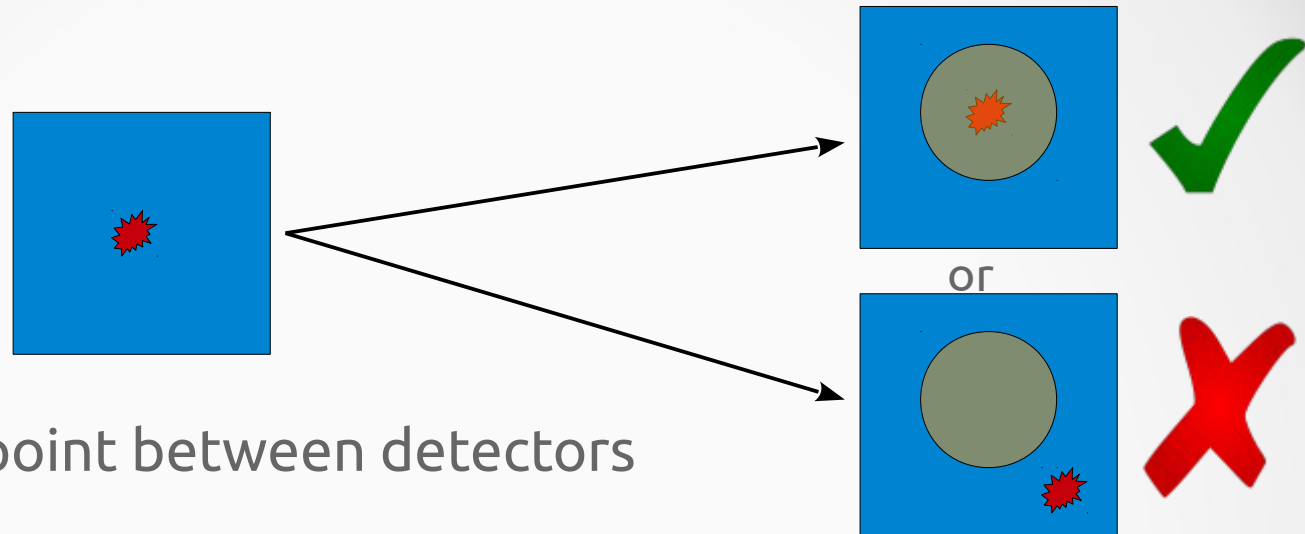
- Tracks are matched separately for upstream and downstream sections to ensure blinding
- At the moment working with mean energy loss only
- Upstream matching currently contains TOF0, TOF1, Tracker0
Downstream: Tracker1, TOF2, KL
- Start from Tracker tracks and propagate outwards to other detectors

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- Propagate track point between detectors
- Compare agreement between propagated and measured track point
- → Accept / Reject

Track Matching & PID

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- Can already do basic downstream PID with the current output, upstream PID not possible yet as it requires TOF0

Challenges

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- Can't match TOF0 at the moment, as RK4 method in MAUS currently ignores Energy loss → bad long-distance propagation
- Melissa will extend RK4 with energy loss

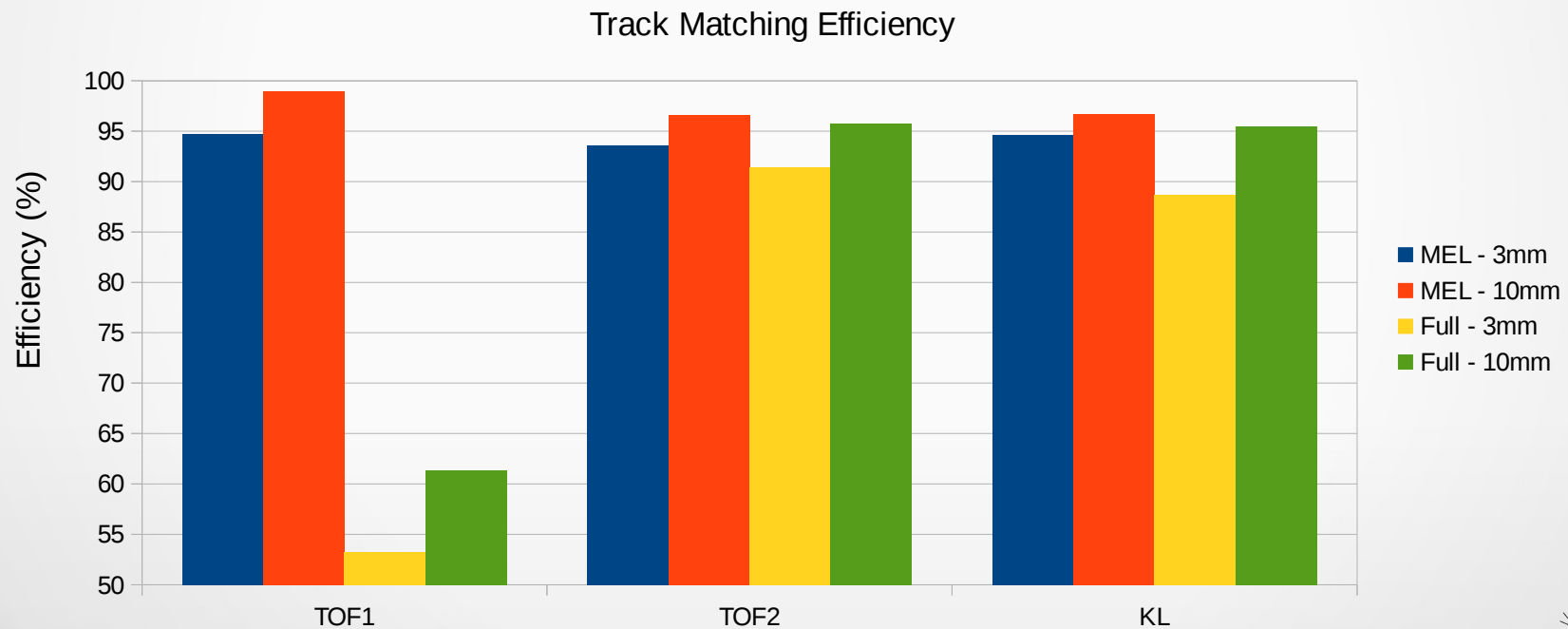
Efficiency

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- Working with single particle spills
- Efficiency taken as # of events with a matched track containing hits in e.g. Tracker0 and TOF1 divided by # of events with hits in both



Next Steps

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- EMR
- Energy loss in RK4
- No-field through-tracks
- Full physics processes
- Full efficiency study
- Error propagation
- Fitting