ENVELOPE-TRACKER Status Update

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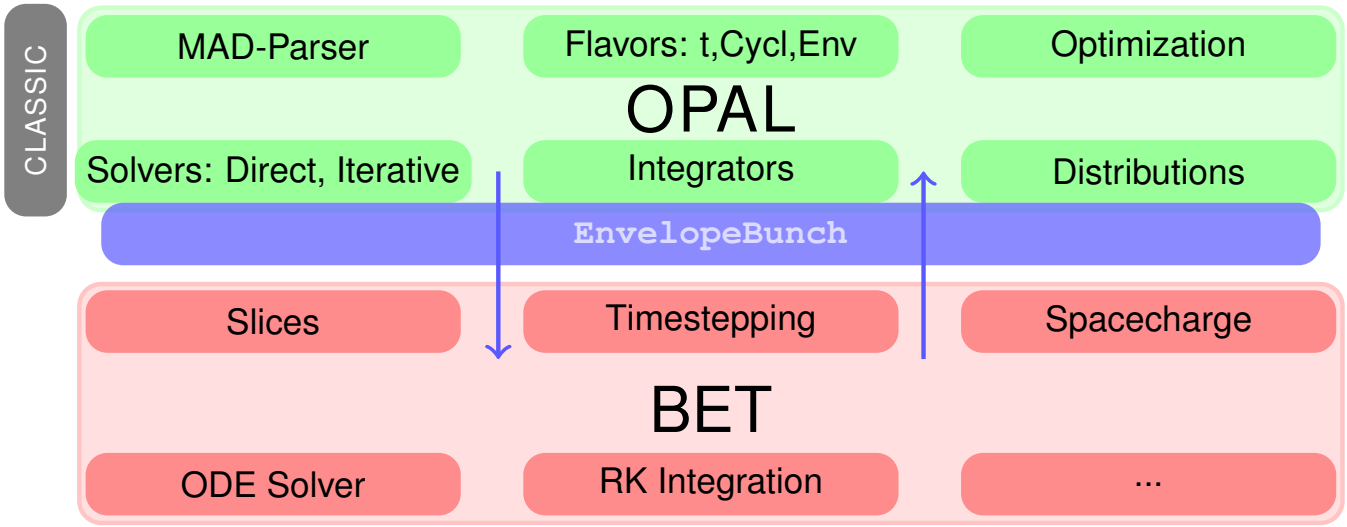
BET Wrapper

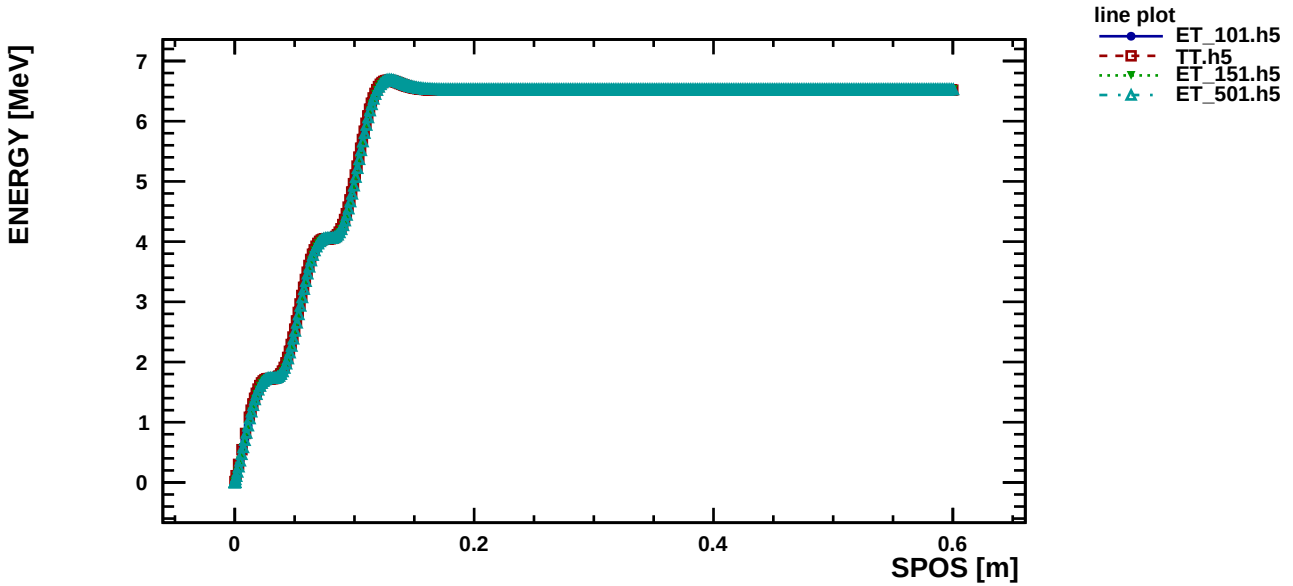


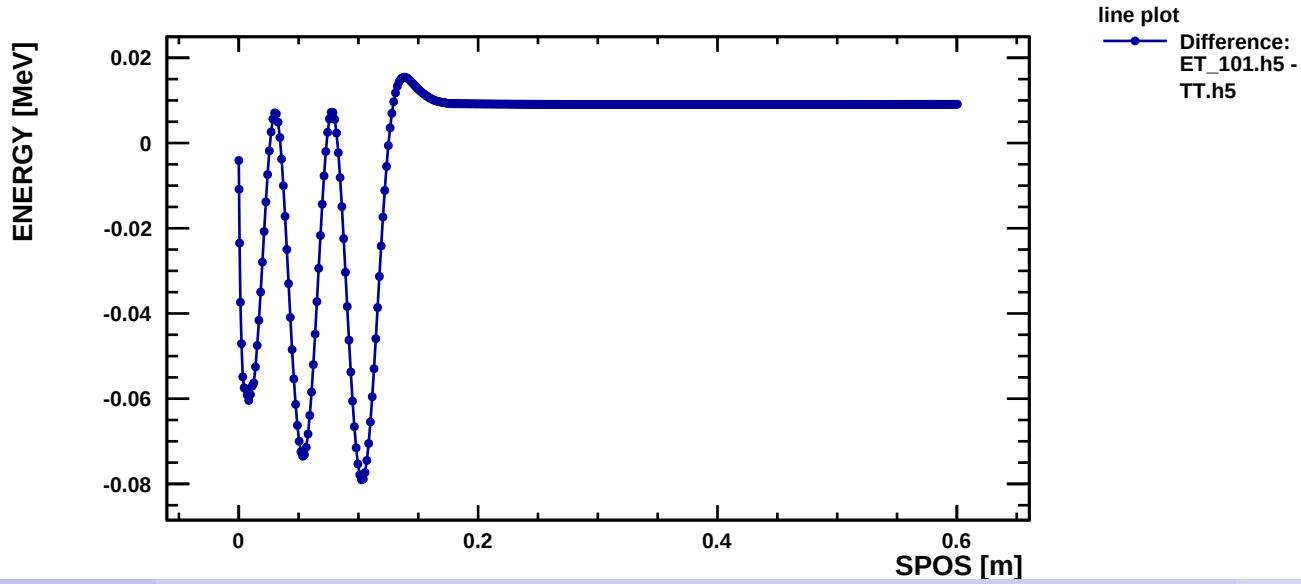
- Wrapper to R. Bakker's BET (Beam Envelope Tracker)
- Using OPAL's famous input files
- Fast and parallel envelope tracker

Summary Envelope Model

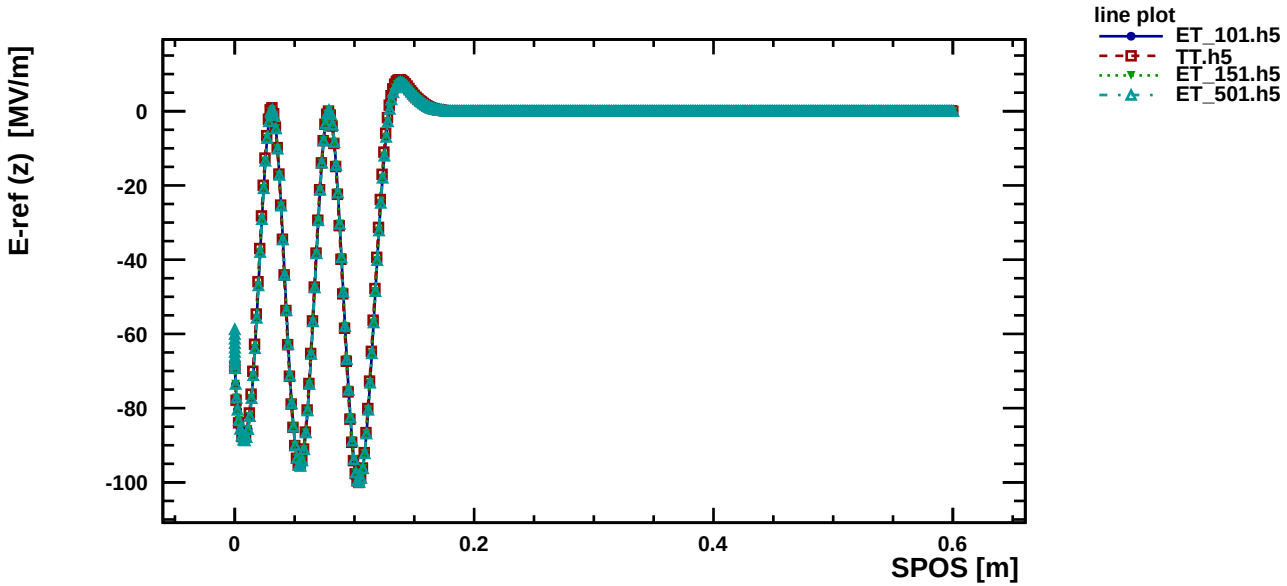
- External fields as in T-Tracker
- Space charge:
  1. intra-slice (analytical)
  2. inter-slice
- Emission as in T-Tracker (one slice per t_{Emission})

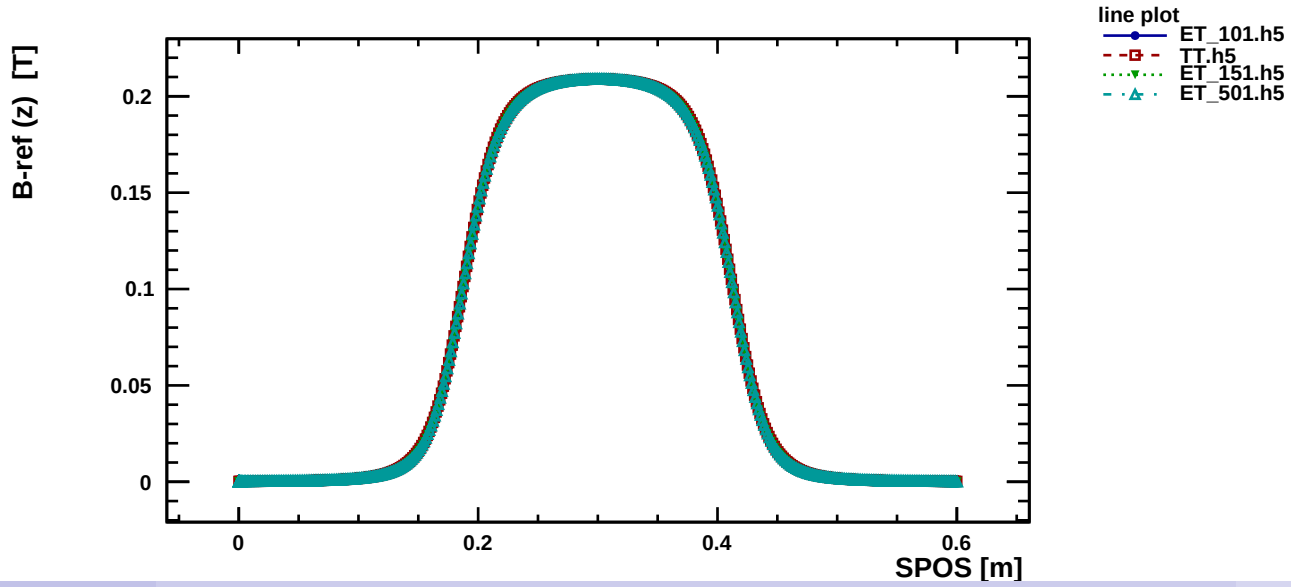
Envelope vs. T-Tracker (1/5)



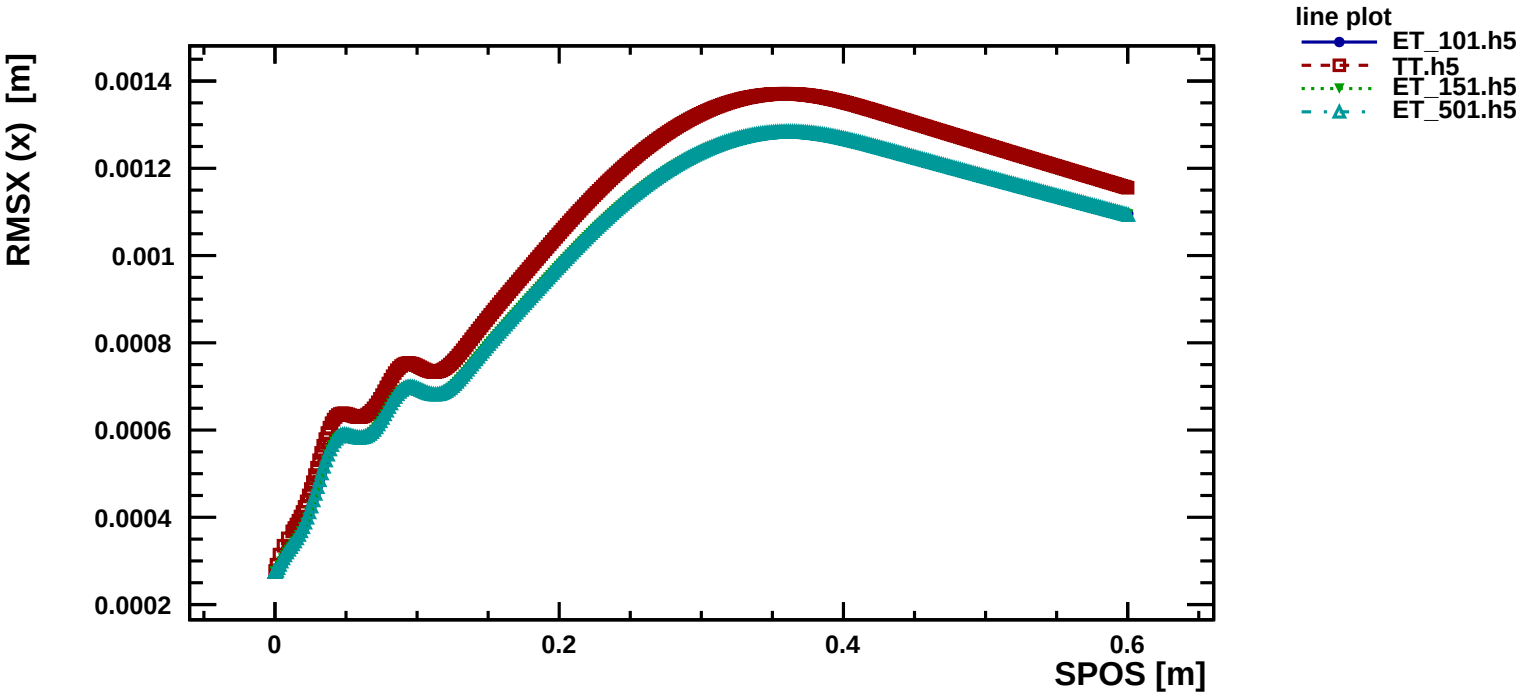


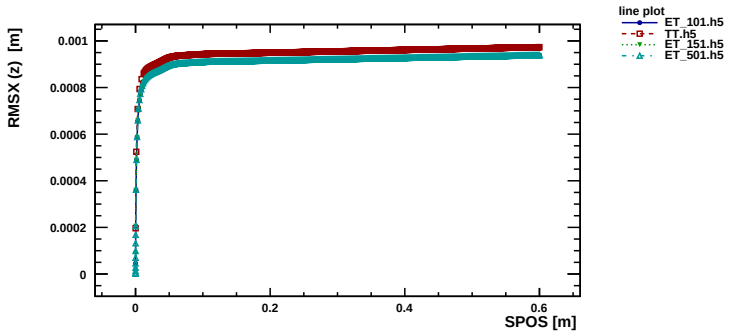
Envelope vs. T-Tracker (2/5)

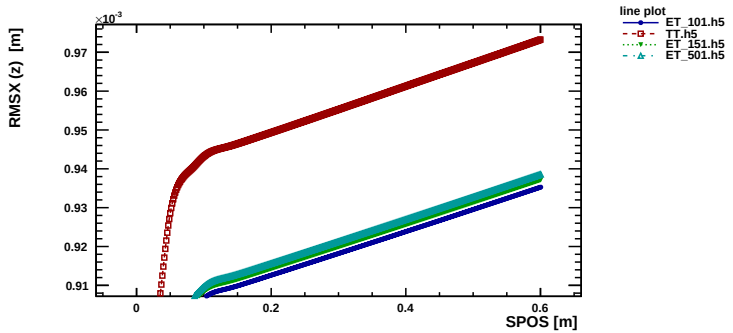




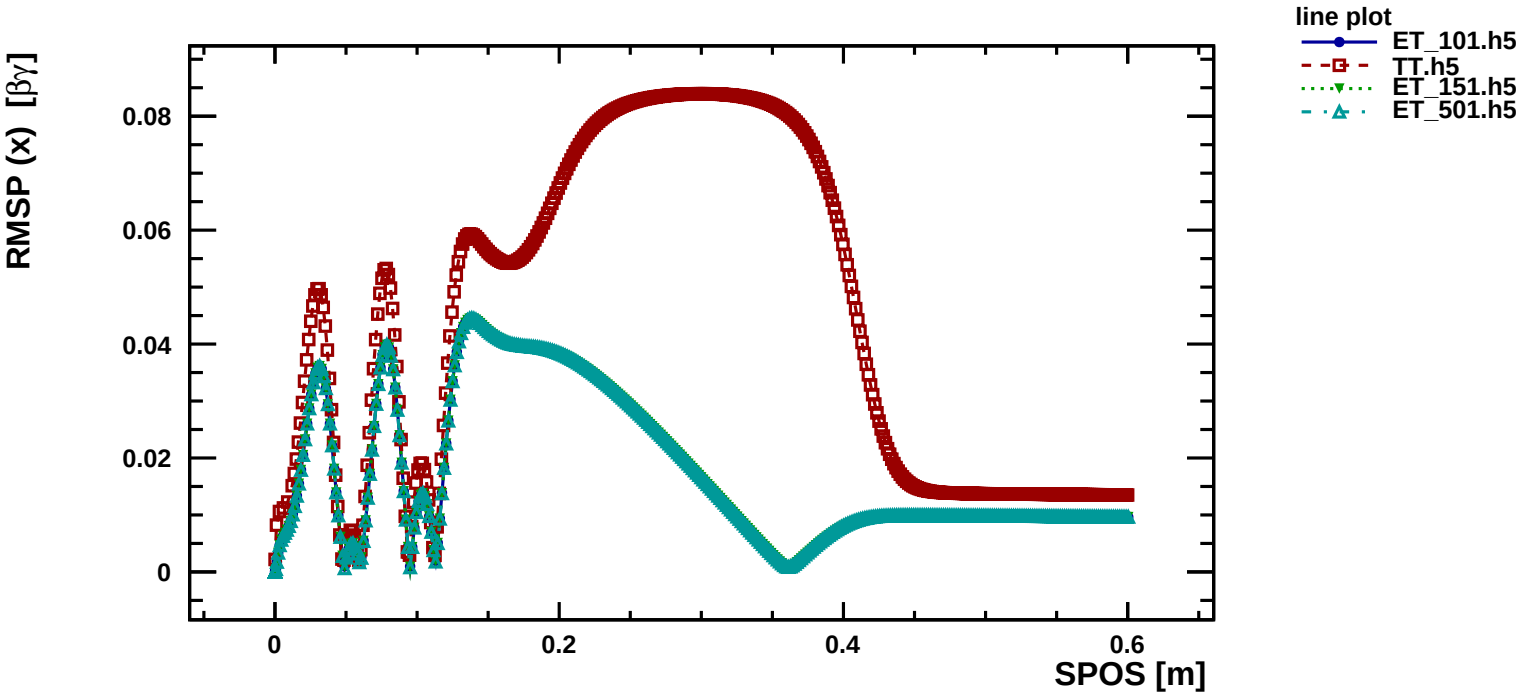
Envelope vs. T-Tracker (3/5)

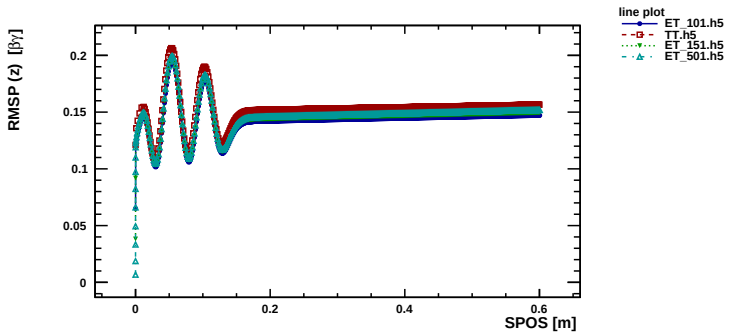


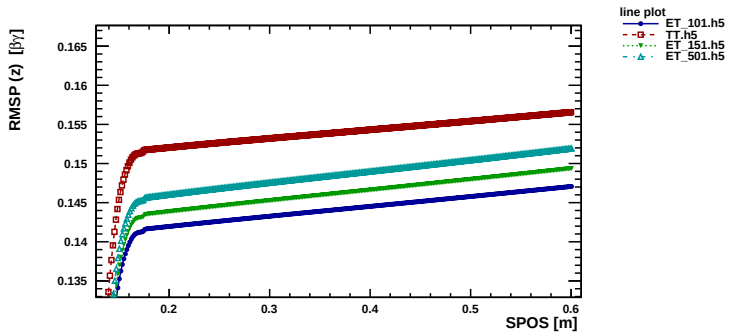




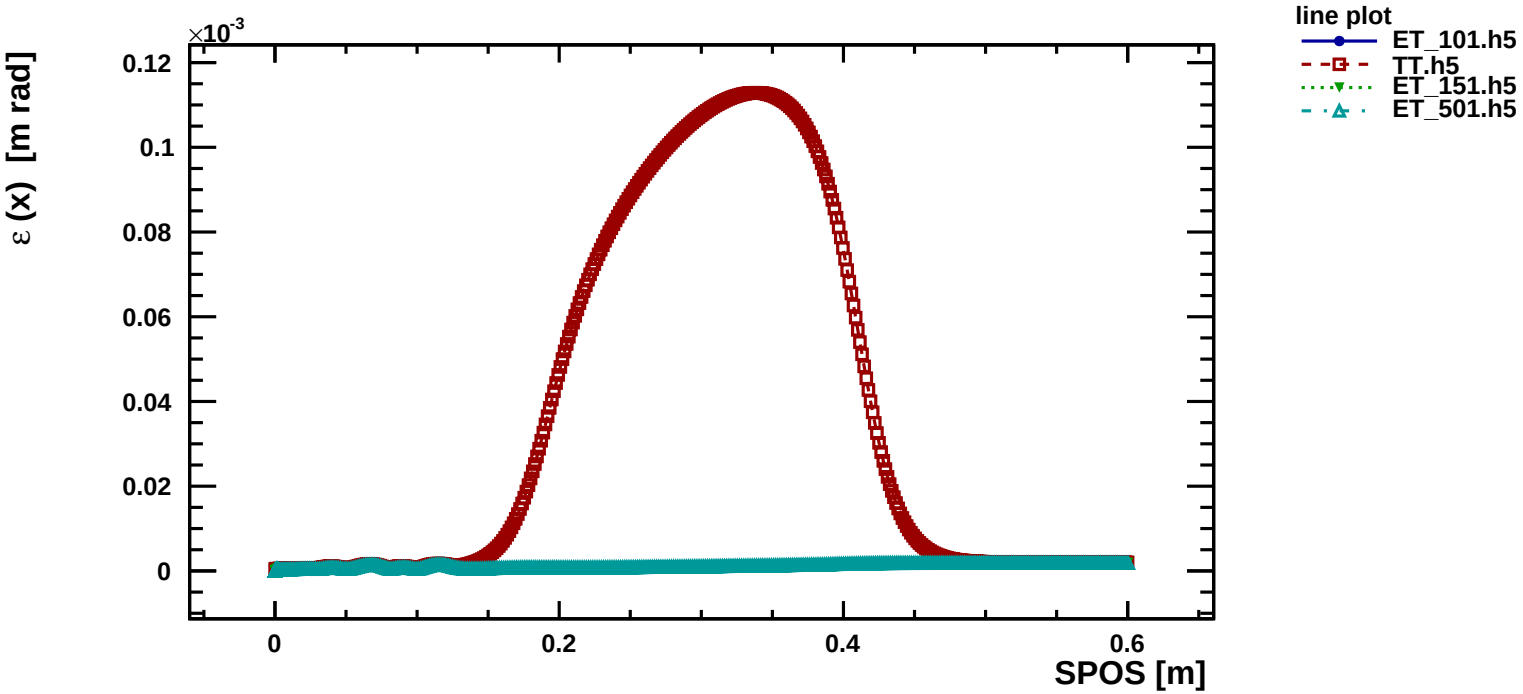
Envelope vs. T-Tracker (4/5)

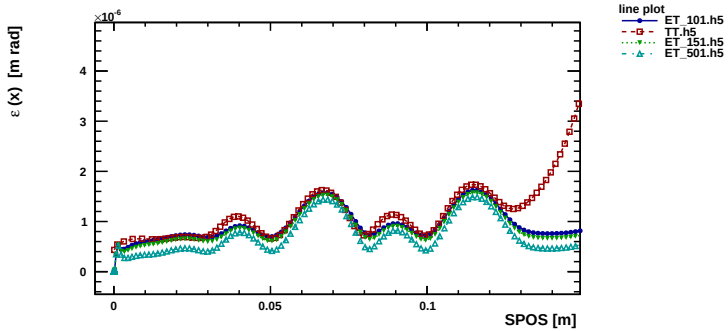


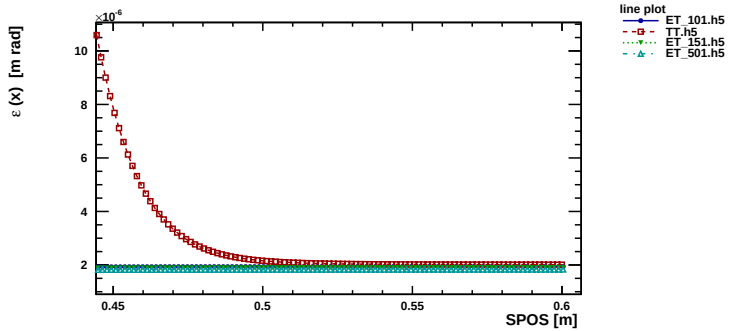




Envelope vs. T-Tracker (5/5)







Work in progress

- Improve parallel efficiency (approx. 60% now)
- Test TW structures (Phase2)
- Gauss initial distribution
- User's feedback will be highly appreciated!
- I. Bazarov (Cornell)
  - $\rho(r,z) \longrightarrow \rho(a,b,z)$
  - Bends
  - Slice radiation

Other OPAL News

- Fixed “charge per particle issue” when using **follow-up tracks**
- Switch from emission timestep to gun (input) timestep:
  - old: when the first re-binning is performed.
  - new: right after the last bin has been emitted.
  - will be in the repository once regression tests are fixed
- **Bugtracker**: `https://h5part.psi.ch/Trac/AMAS/OPAL`