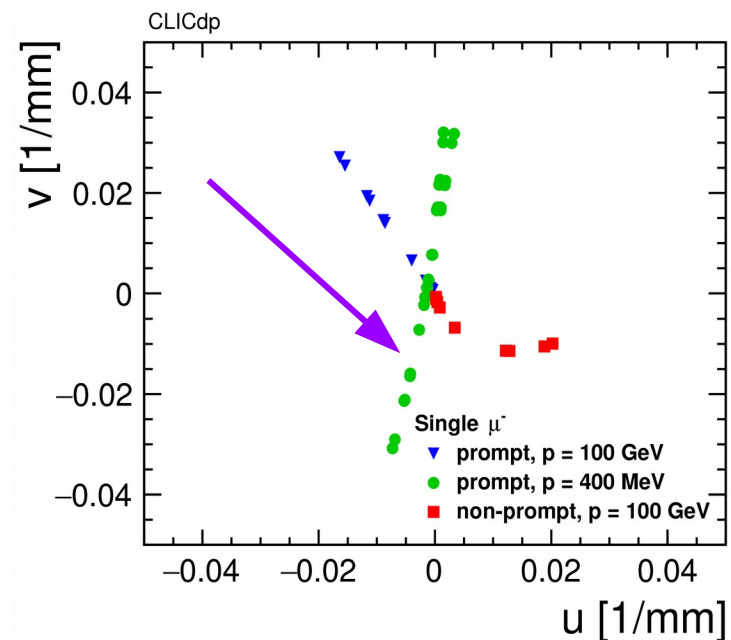
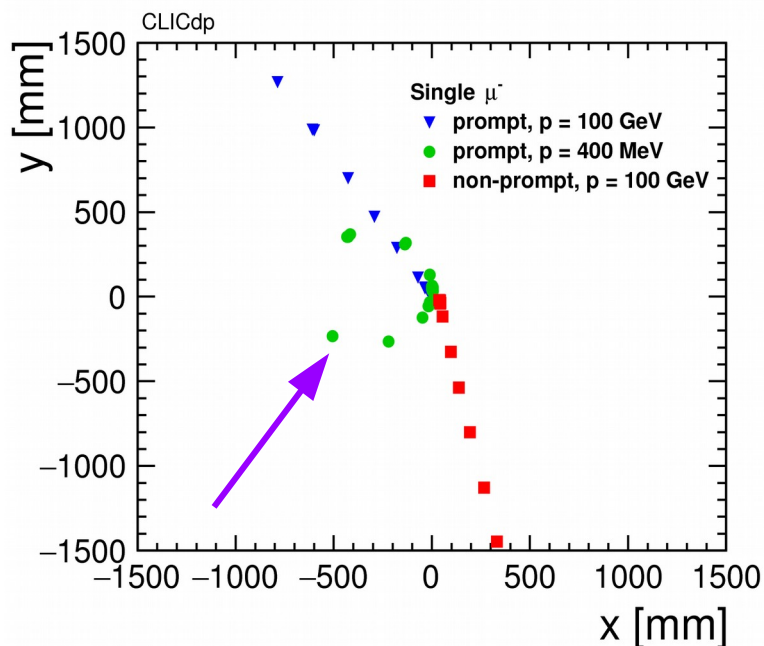




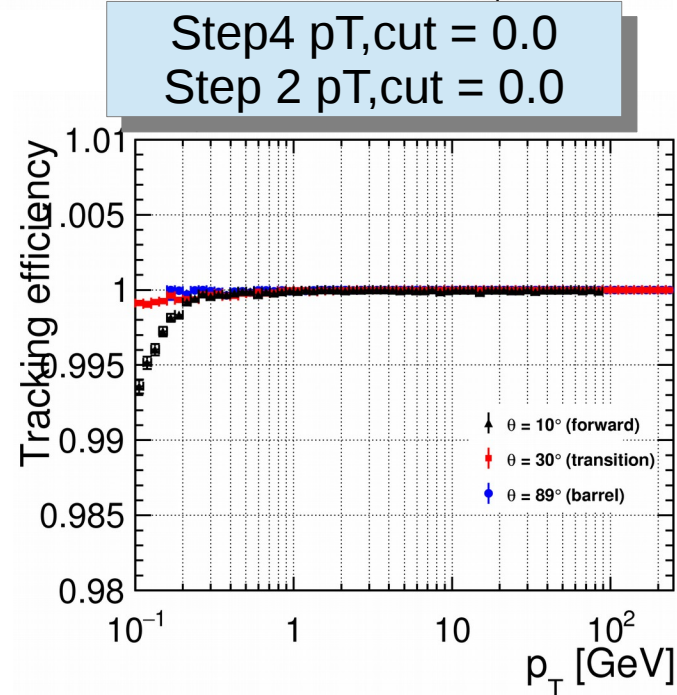
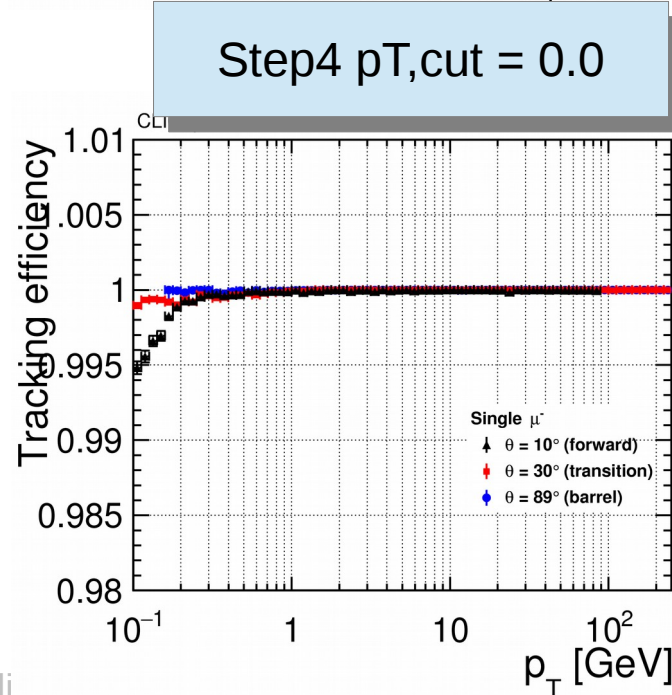
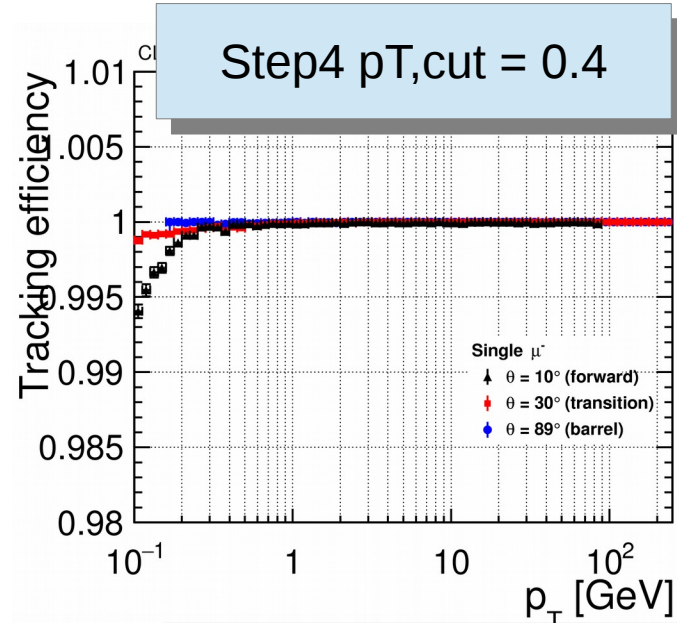
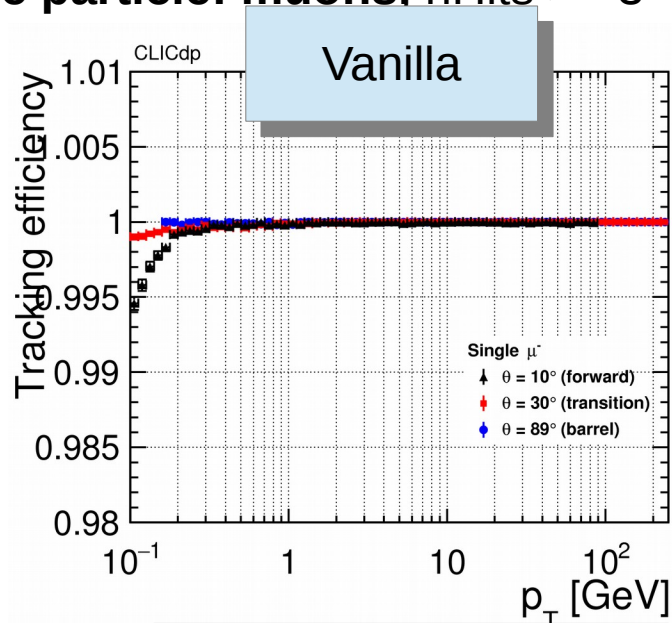
# Study on the quadratic term in the CT fit for low- $p_T$ tracks (Extension only)

Erica Brondolin

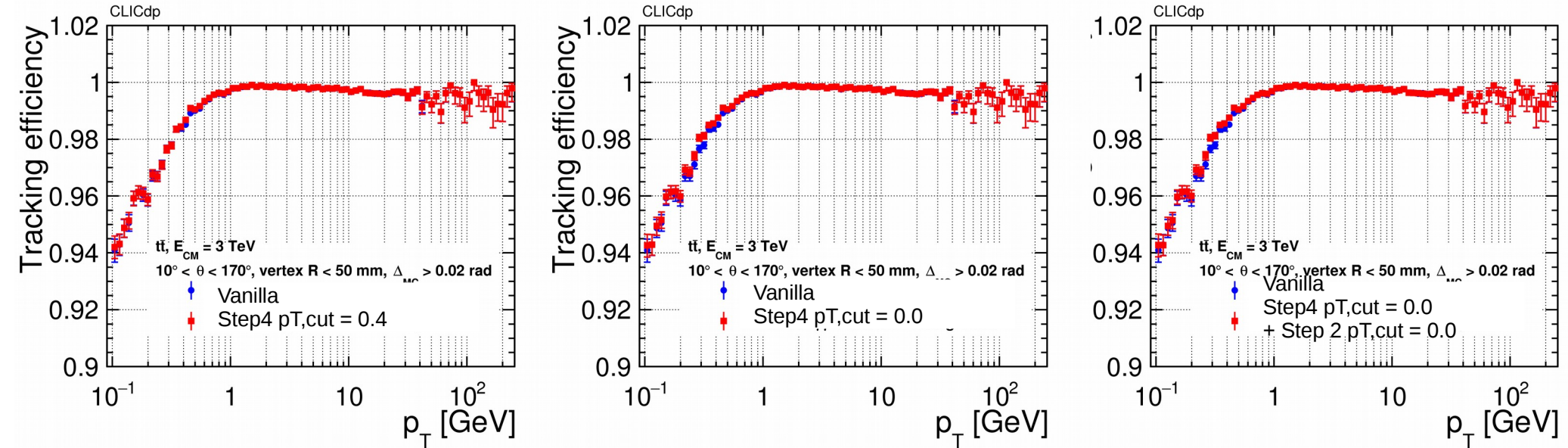
- **ILCSoft version used:** Release 2019\_07\_09
- **Cell Extension - concept:**
- Find high-pT tracks with linear CT fit, marked hits as used, and search for low-Pt ones with all unused hits, provided that they are not located on the other side of the detector in z + quadratic term introduced in the regression formula
- **Current  $p_{T,cut}$**  = 10 GeV (in step 2) and 1 GeV (in step 4)
- The conformal mapping should work for the low-PT tracks → the linear CT fit should work!



- Single particle: muons, nHits  $\geq 3$



- **Complex events:  $t\bar{t}$ , nHits  $\geq 4$**



- Fake rate as well very similar
- Time for 10 events: from 365 s to 289 s (20% less)

## (My) Conclusions:

- The quadratic term in the fit is **not needed** for the low- $p_T$  tracks

### Next steps:

- Should we look also w/overlay?
- To be checked with 09-04 release



Thank you for the attention!