

Cherenkov profile

CIDeR-ML collaboration meeting

9 August 2024

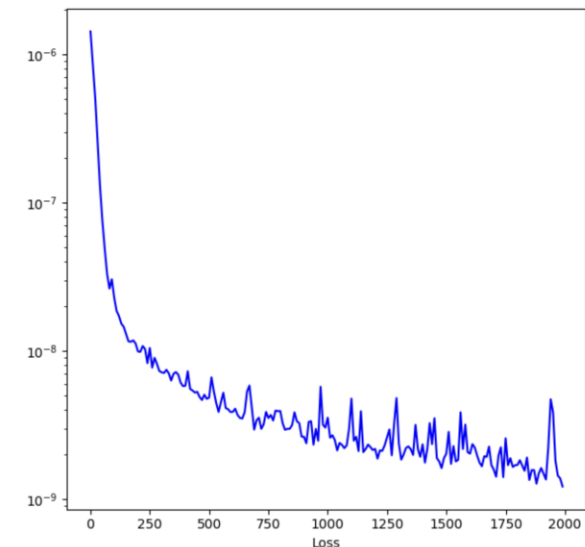
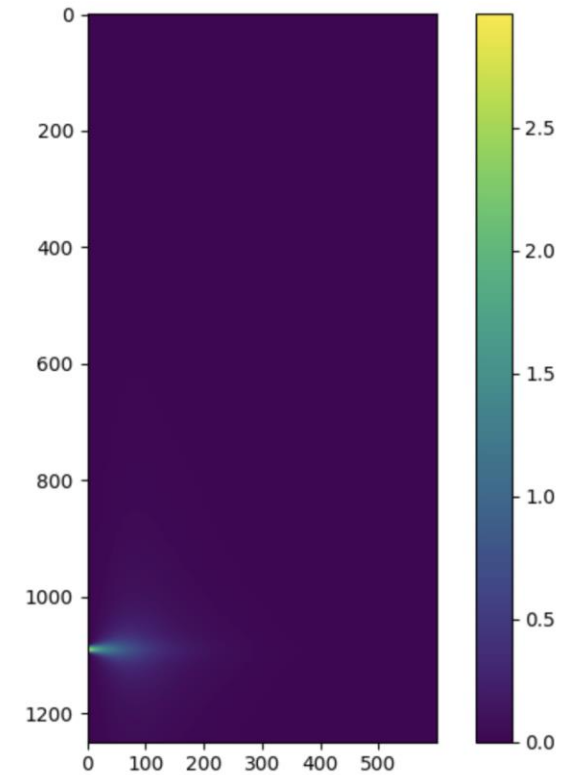
Ryo Matsumoto (TokyoTech)

Summary of this collaboration meeting

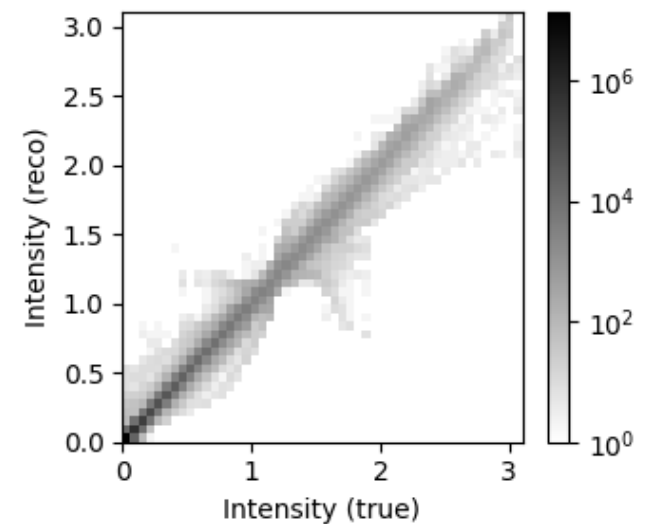
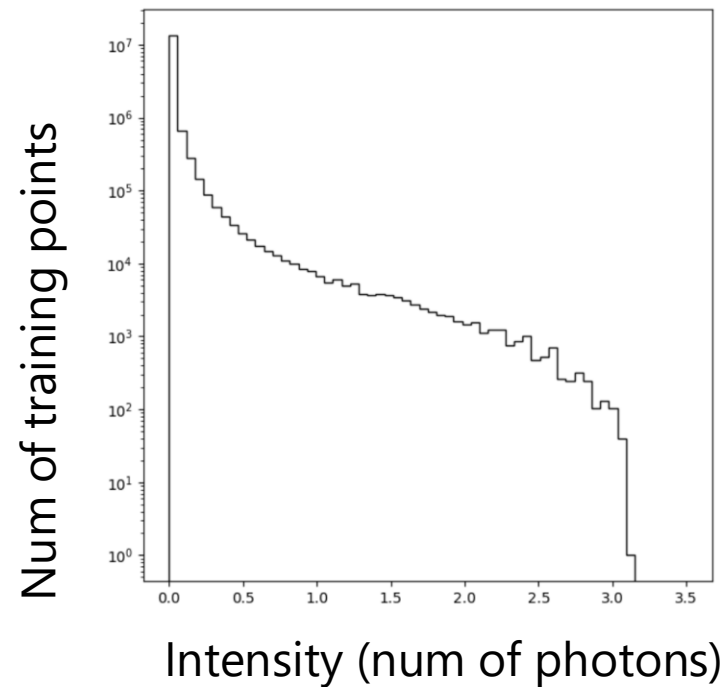
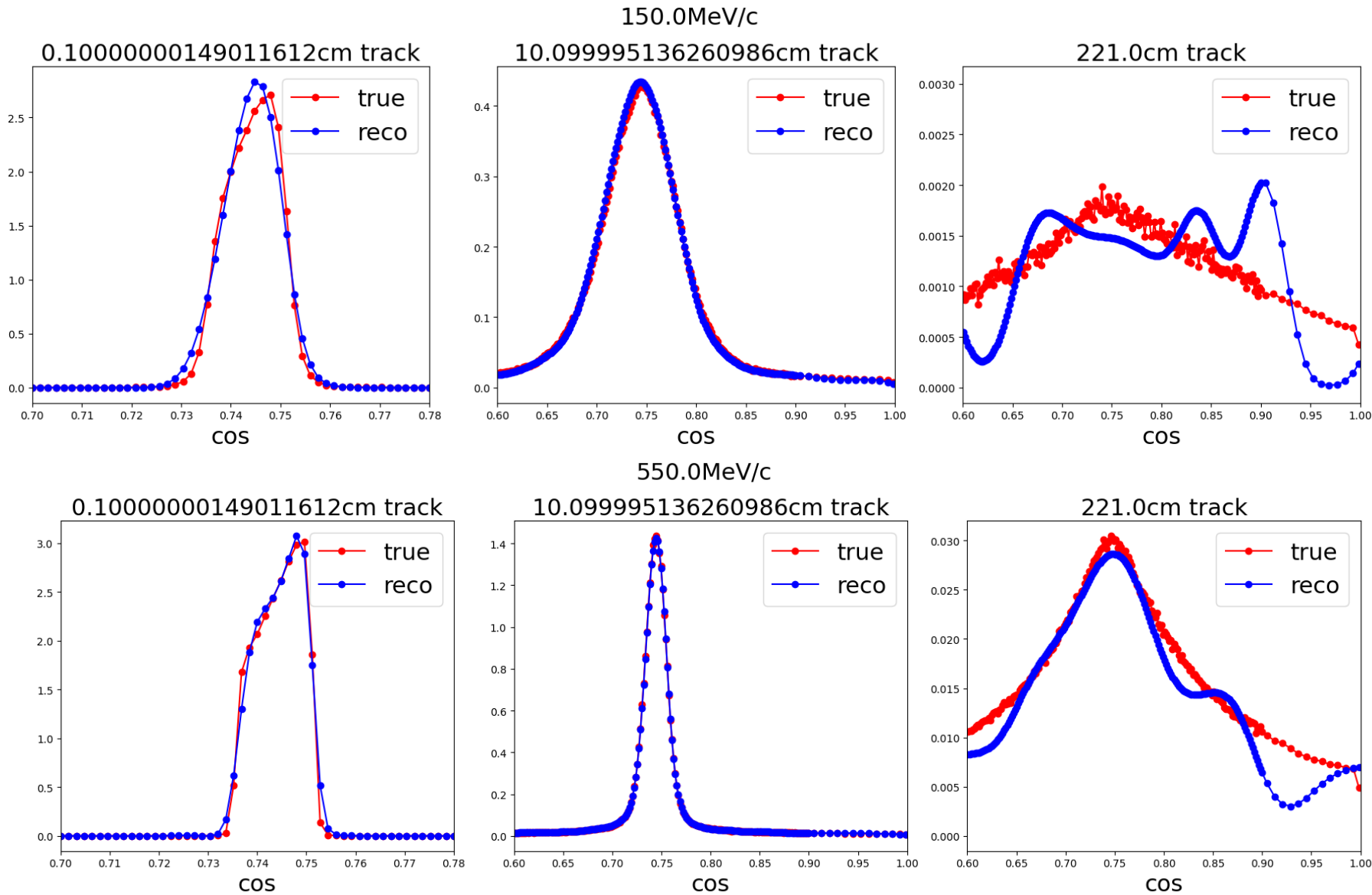
- Model update
 - non-linear binning of the profile to train peaks efficiently
 - positive output (train Nphotons as NN output²)
- Weighted training
- Interpolation check
- Muon profile

Model update

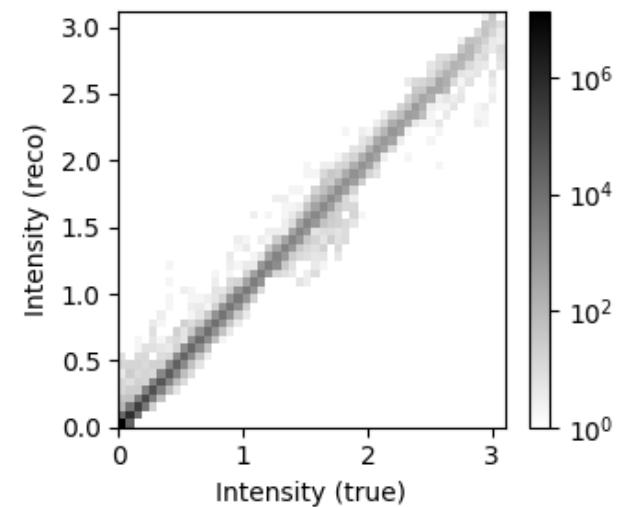
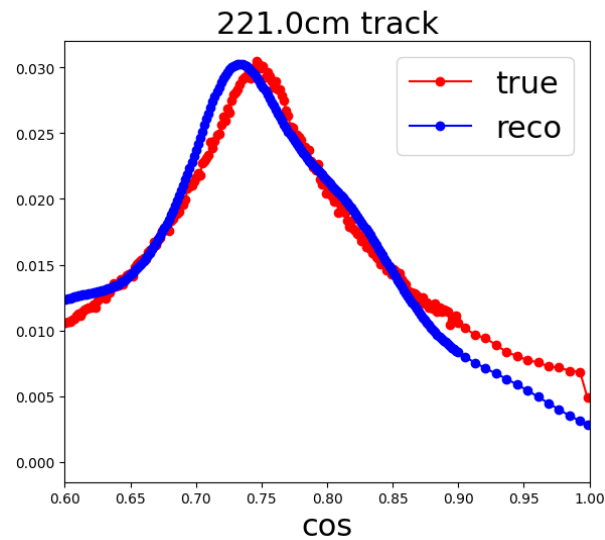
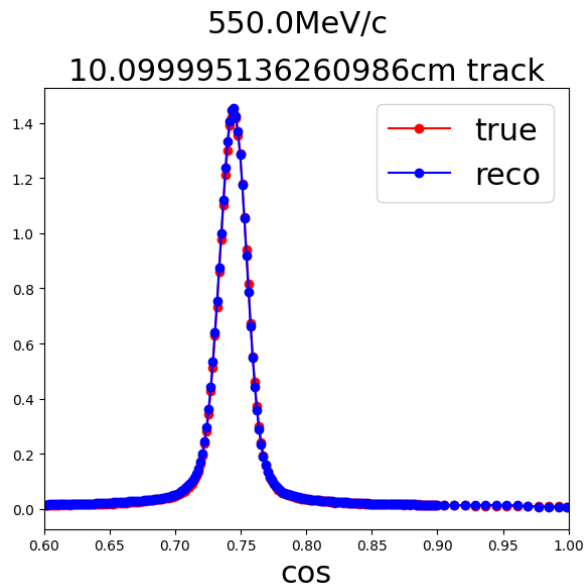
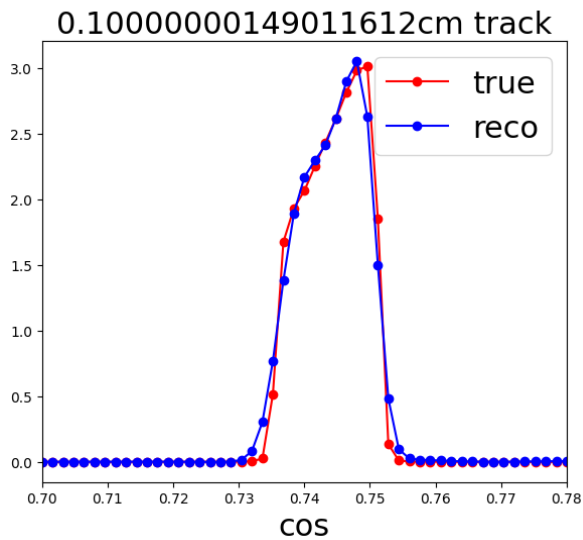
- Binning for \cos $[-1,1]$ and tracks $[0,600\text{cm}]$
 - linear binning (previous)
 - \cos : 1250bins
 - track: 600bins
 - non-linear binning (new)
 - $0.6 < \cos < 0.9$: bin width $4/2500$
else: bin width $10 \cdot 4/2500$
 - $0 < s < 20\text{cm}$: bin width $600/3000$
else: bin width $10 \cdot 600/3000$
- The number of photons are normalized by bin width



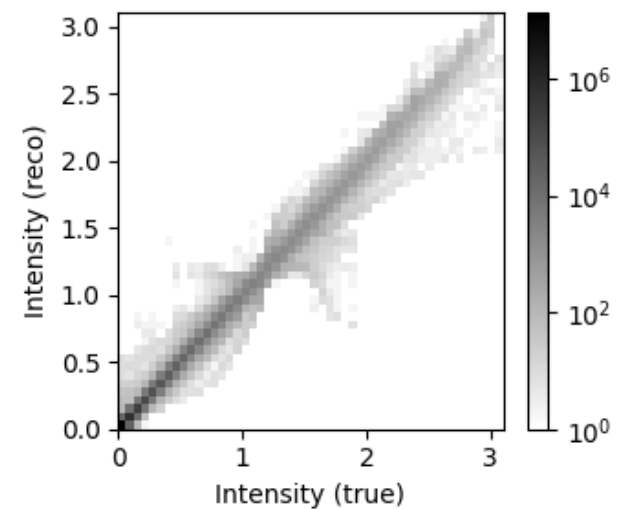
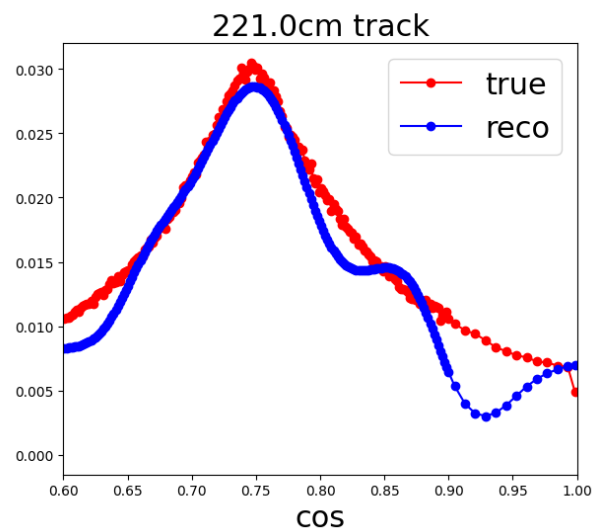
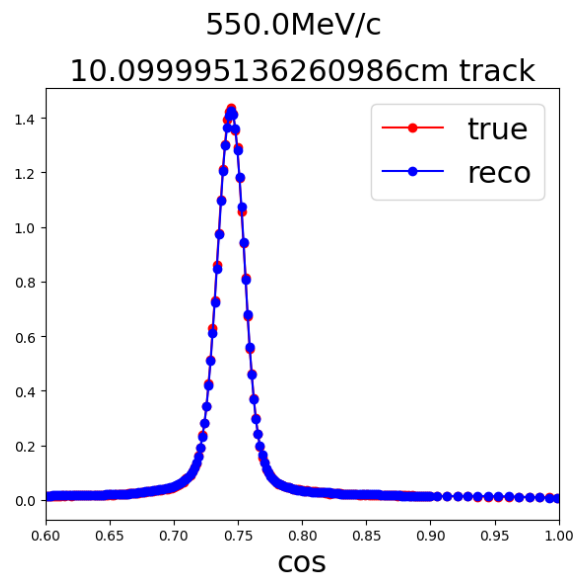
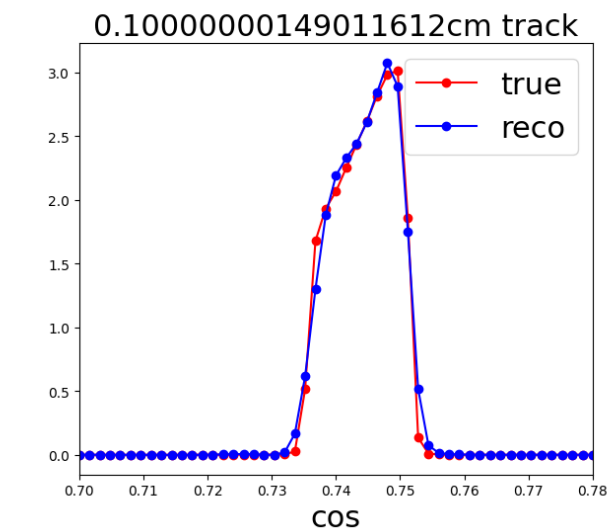
Weights: (intensity distribution)⁻²



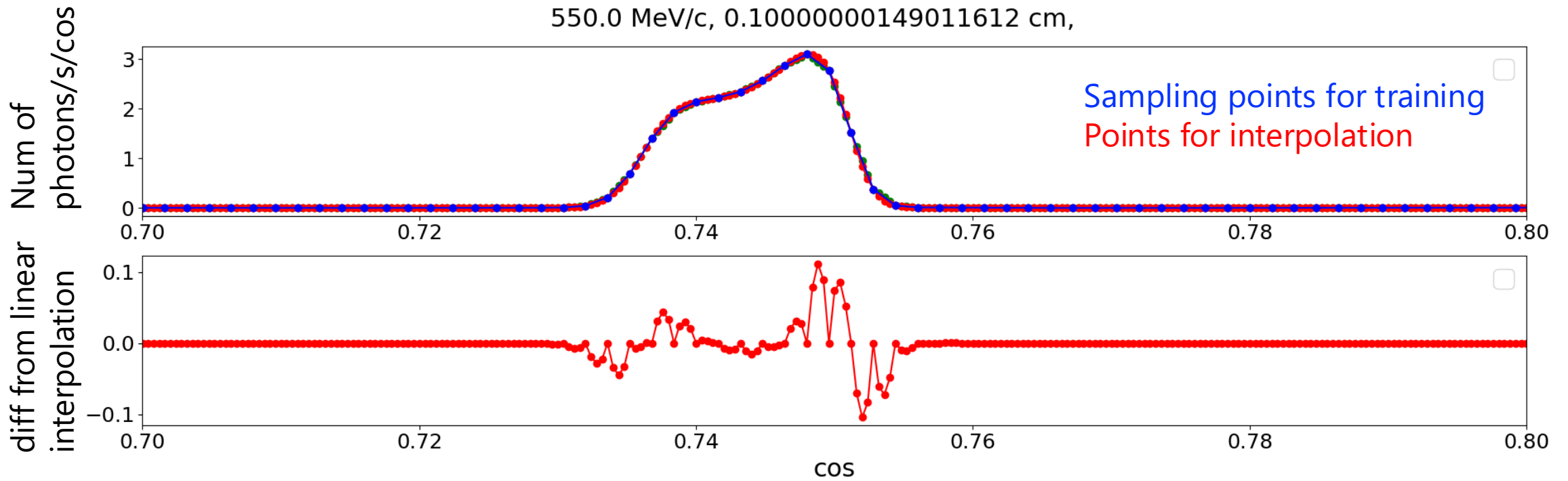
without weights



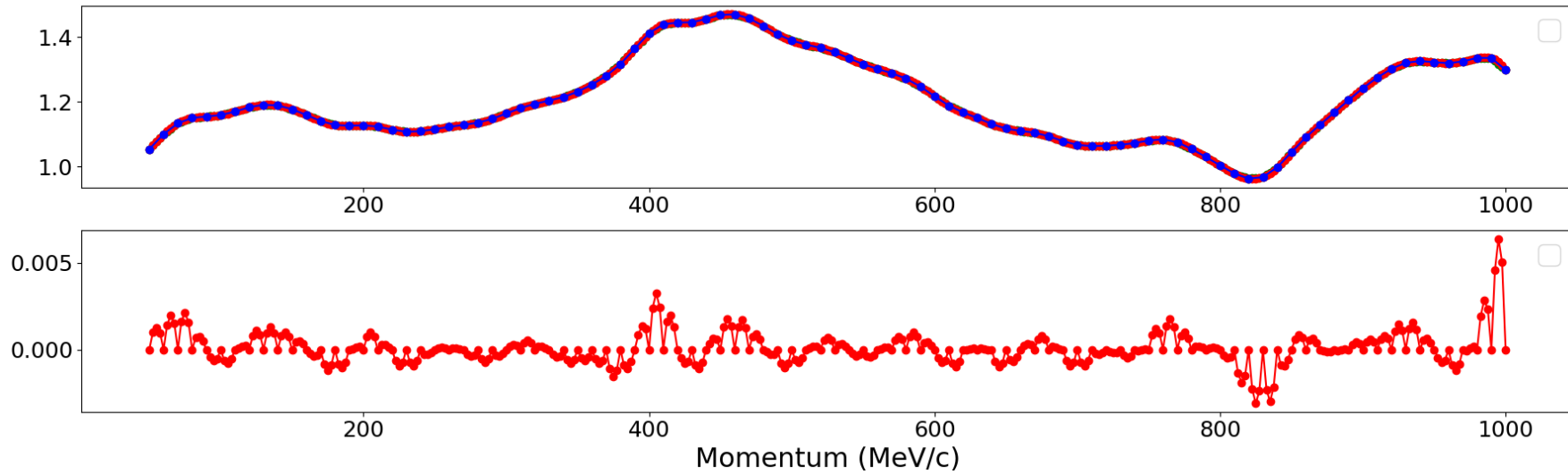
with weights



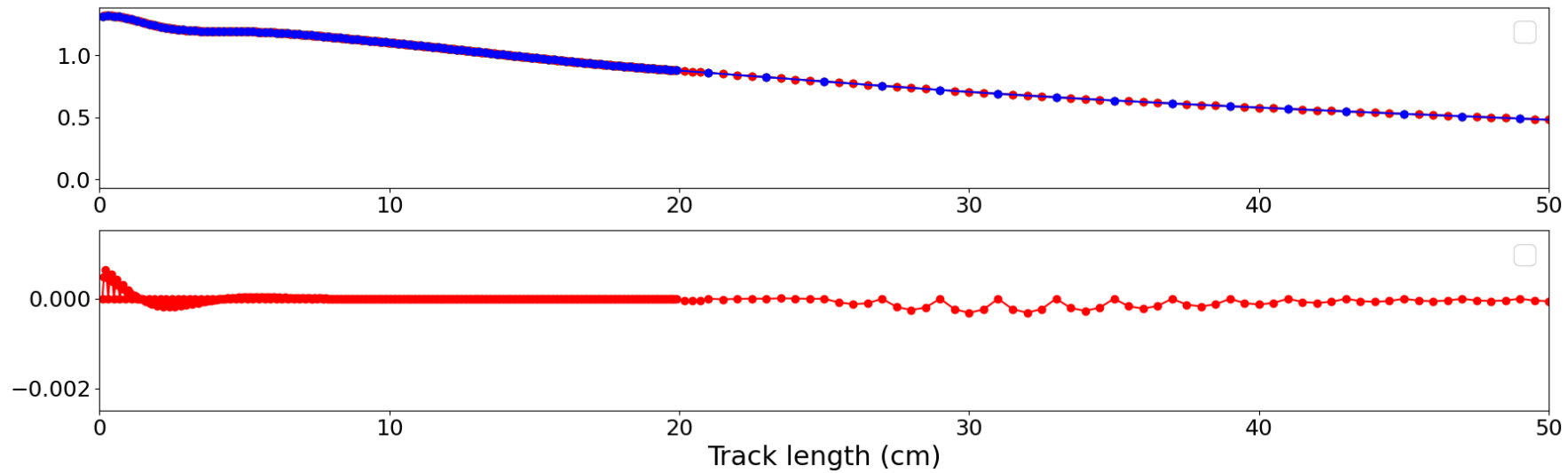
Interpolation check



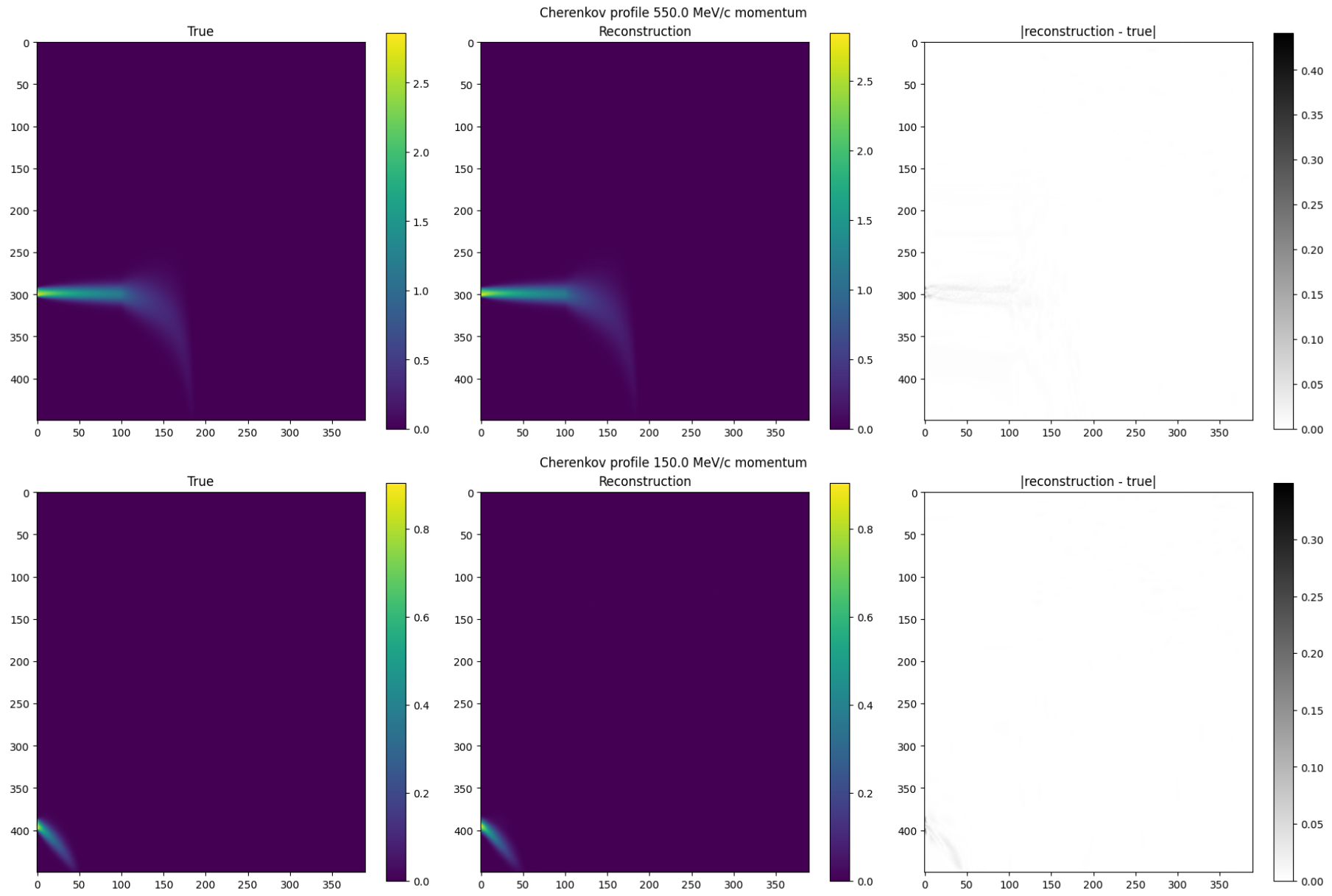
42.54026893104909 degree, 0.10000000149011612 cm,



550.0 MeV/c, 42.54026893104909 degree,



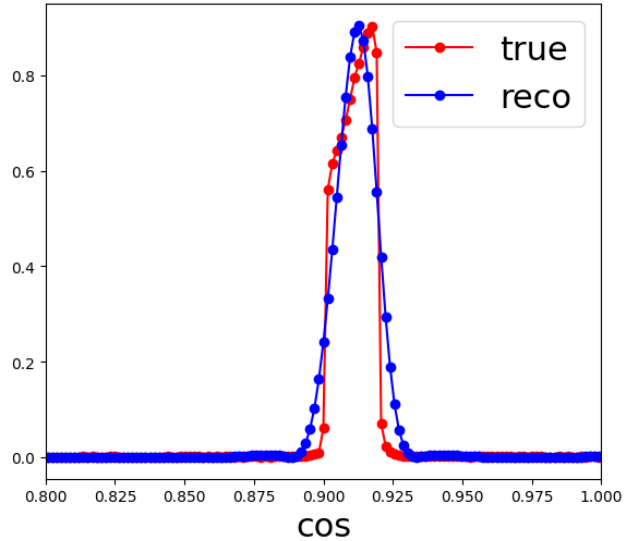
Muon profile training



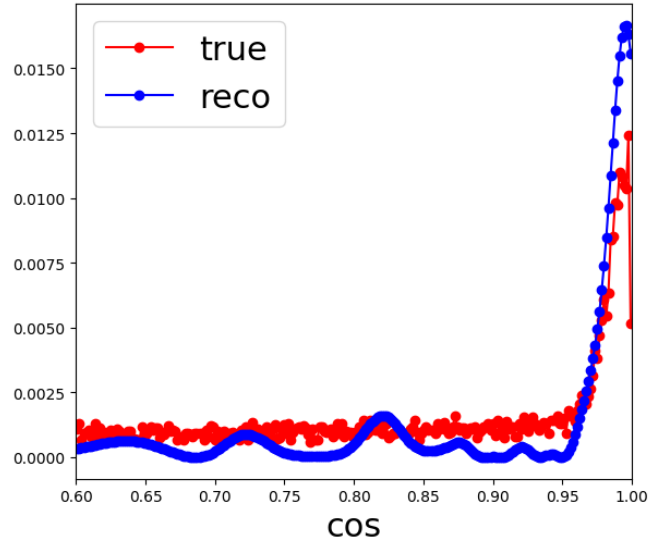
Muon profile training

150.0MeV/c

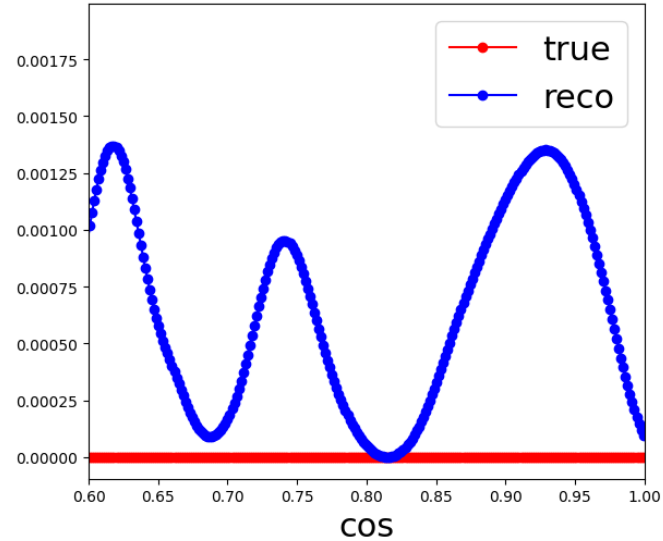
0.10000000149011612cm track



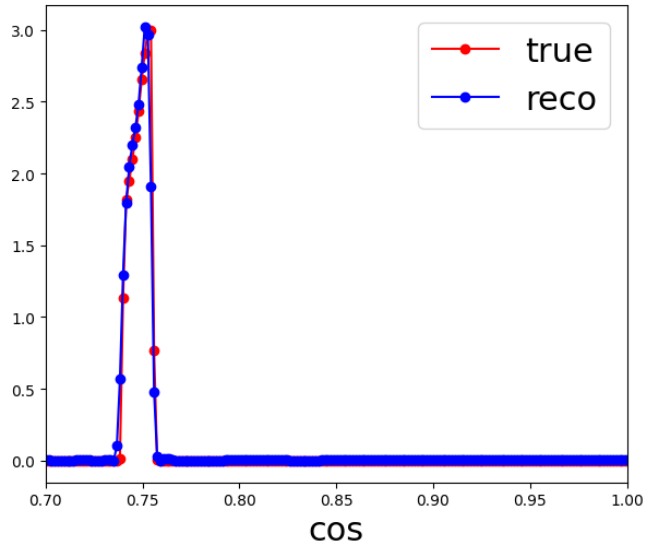
10.099995136260986cm track



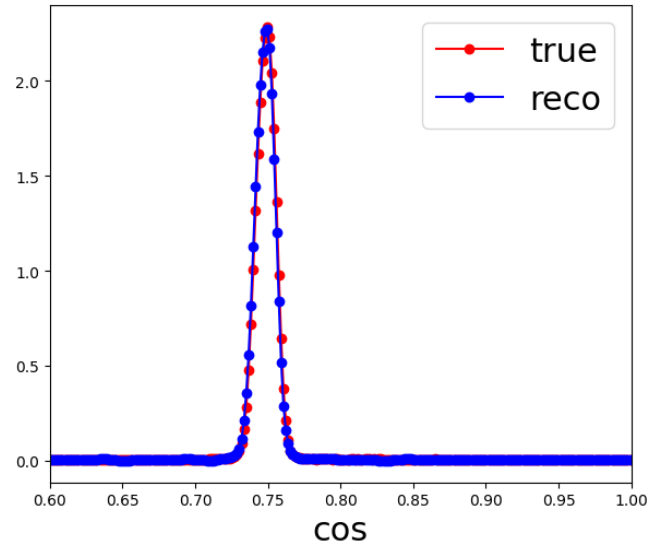
221.0cm track



0.10000000149011612cm track



10.099995136260986cm track



221.0cm track

