

PREVIEW OF VXDTF2

Giulia Casarosa



JOHANNES GUTENBERG
UNIVERSITÄT MAINZ



Alexander von Humboldt
Stiftung/Foundation

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Integrated Efficiencies

➔ The tracking performance with VXDTF2 are improved

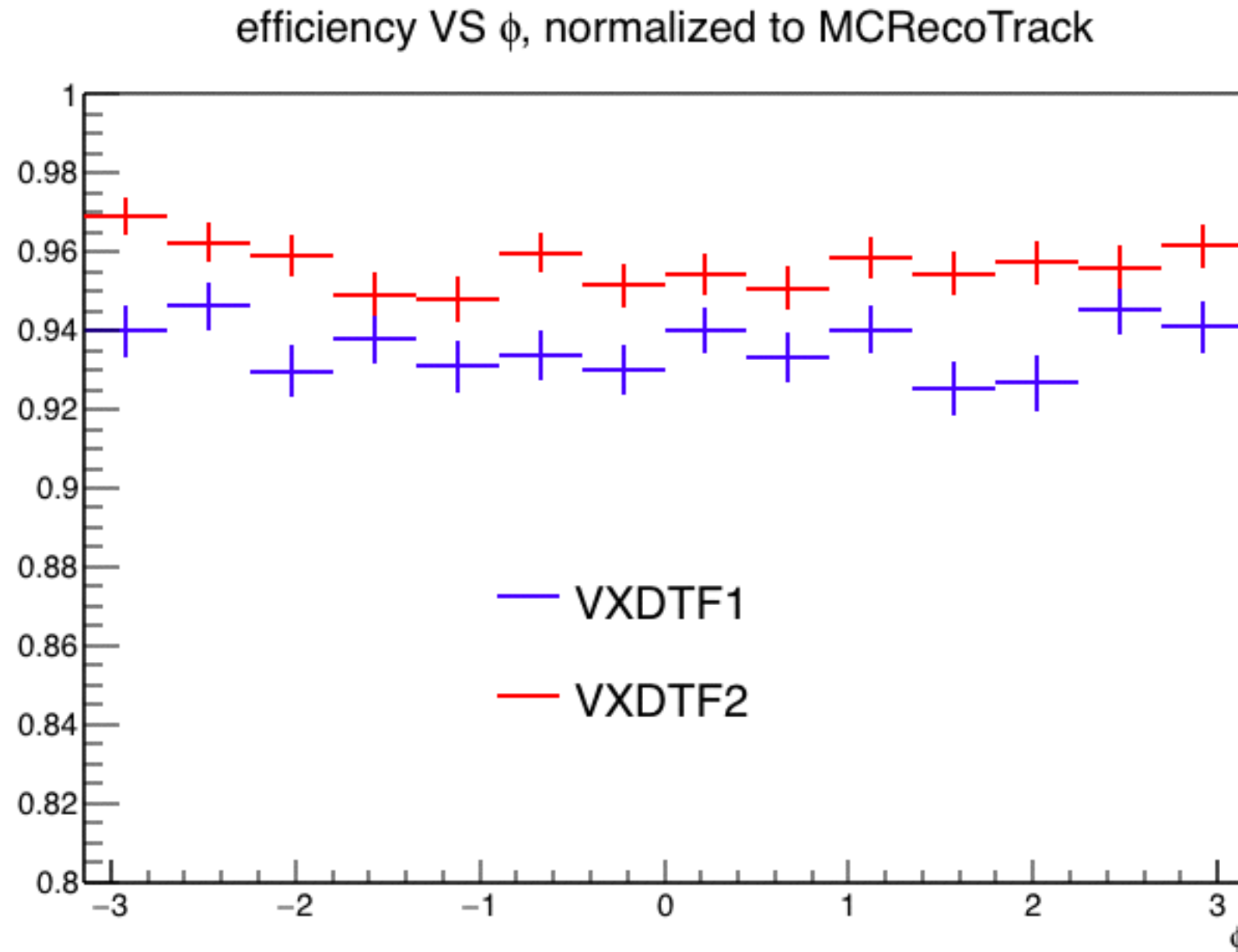
- only the pion mass hypothesis has been used here although all 5 mass hypotheses are available (only if the TrackFitResult exists)

this is the one shown in the plots, except for slides 8 & 14

	VXDTF	tracking efficiency	efficiency factoring out geom. accept.
no bkg & no PXD Data Reduction simulation	VXDTF1	85.2 ± 0.2	93.9 ± 0.2
	VXDTF2	87.0 ± 0.2	93.3 ± 0.2
std bkg & PXD Data Reduction simulation(*)	VXDTF1	81.6 ± 0.3	89.8 ± 0.2
	VXDTF2	84.6 ± 0.2	92.3 ± 0.2

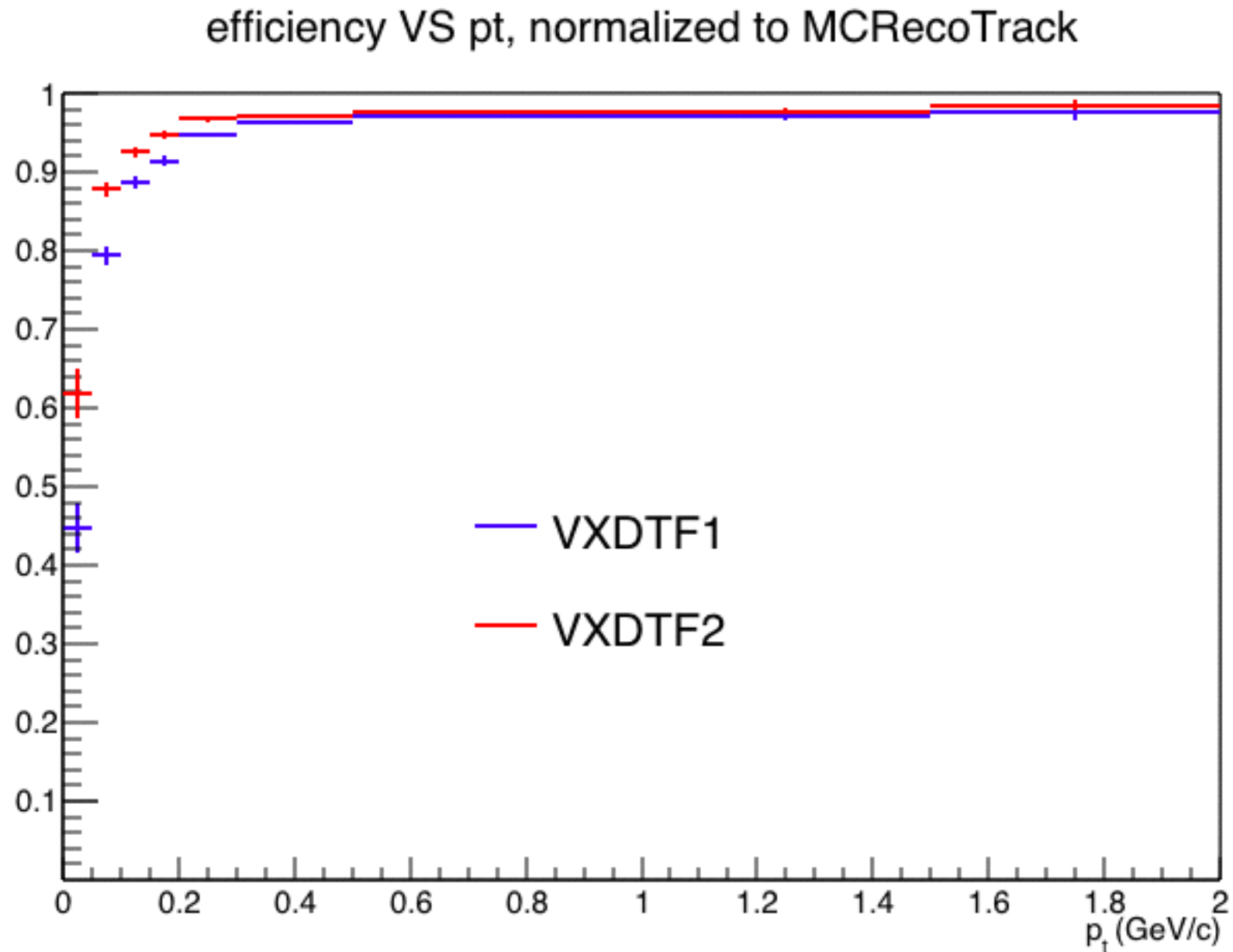
(*) the sector maps used in the reconstruction are trained without PXD Data Reduction

Efficiency vs phi ~ no ROI & no Bkg



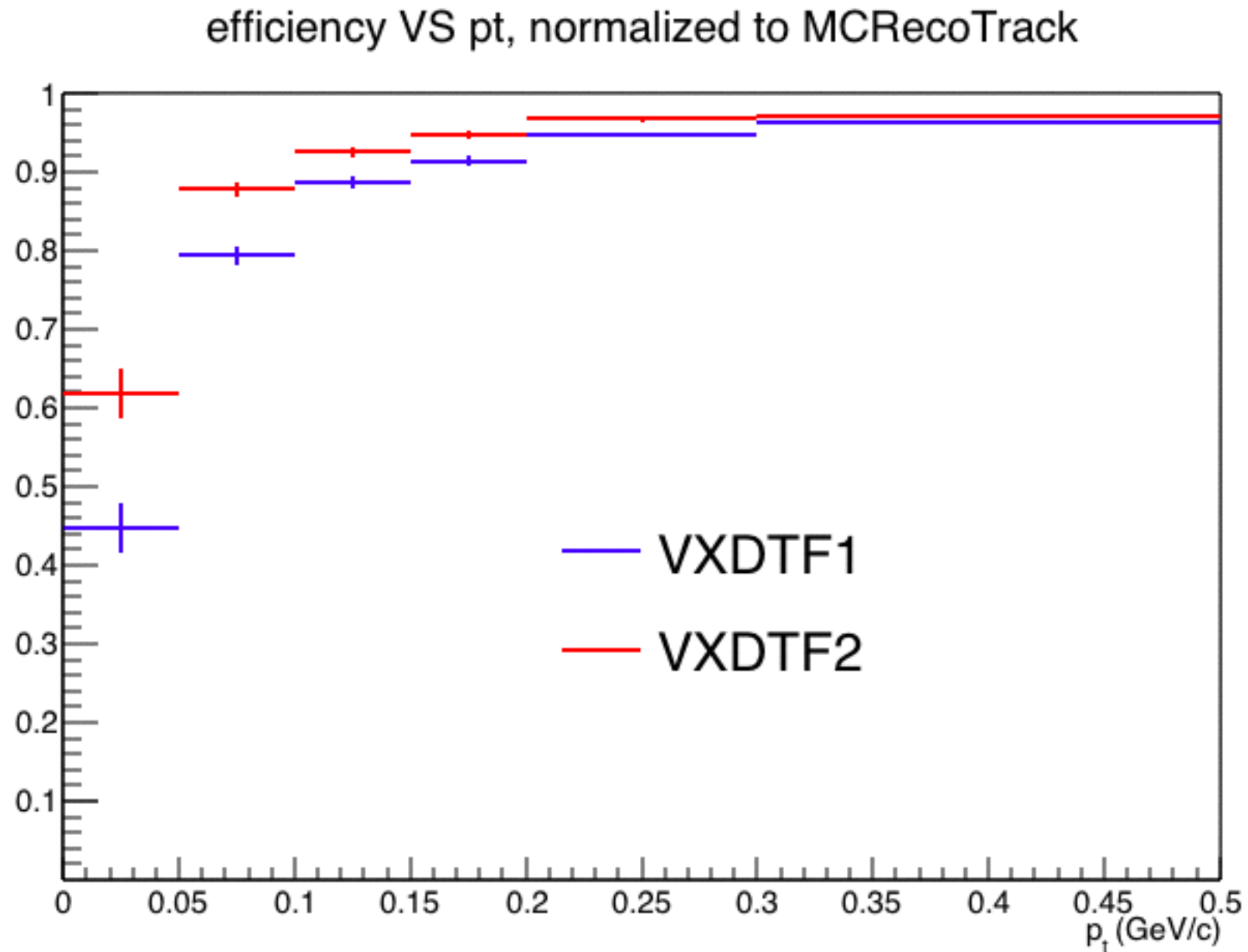
➔ Overall improvement, flat in phi, by a few percent

Efficiency vs $p_T \sim$ no ROI & no Bkg



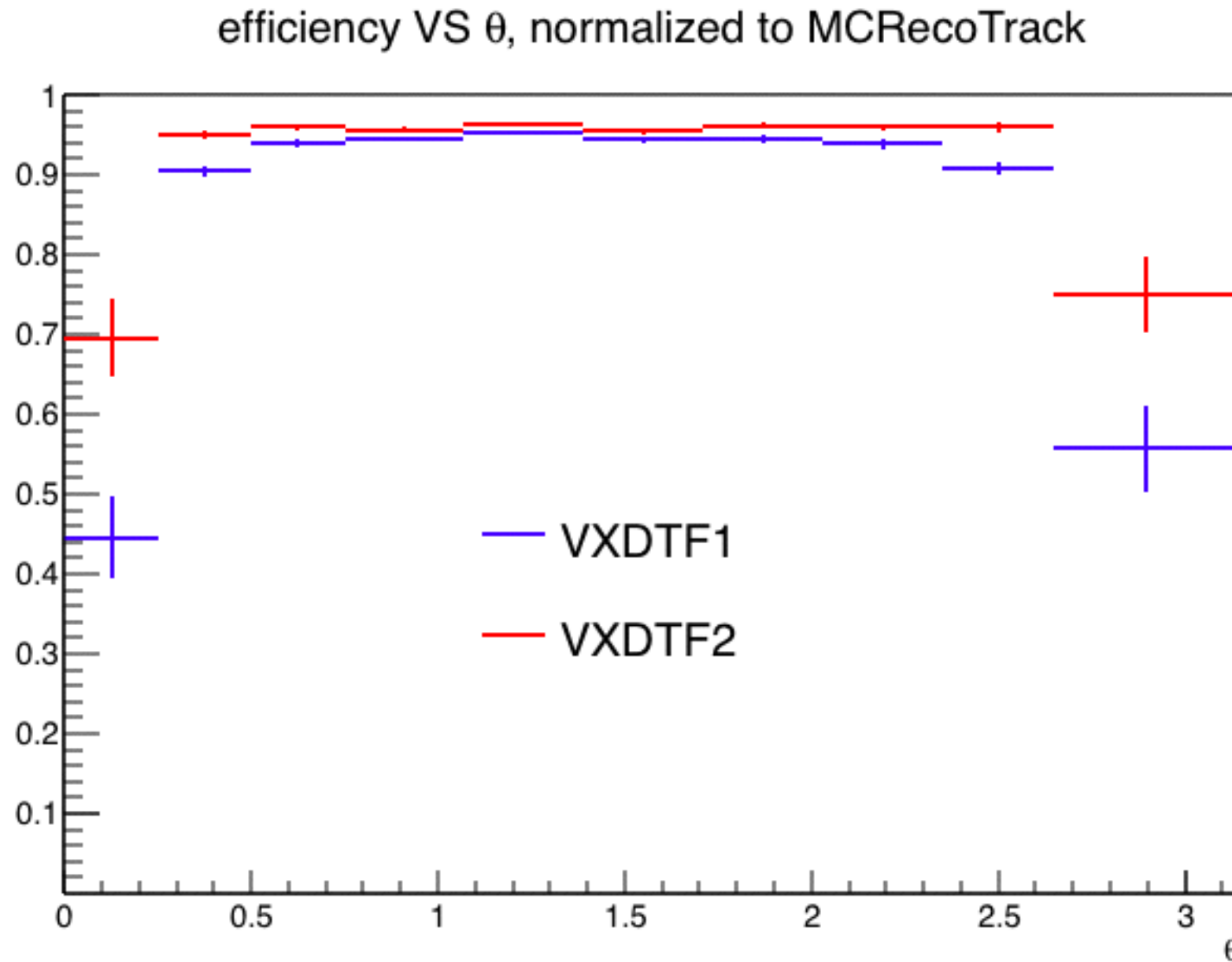
➔ VXDTF2 improves the performances especially at low p_T , below 200 MeV/c.

Efficiency vs $p_T \sim$ no ROI & no Bkg



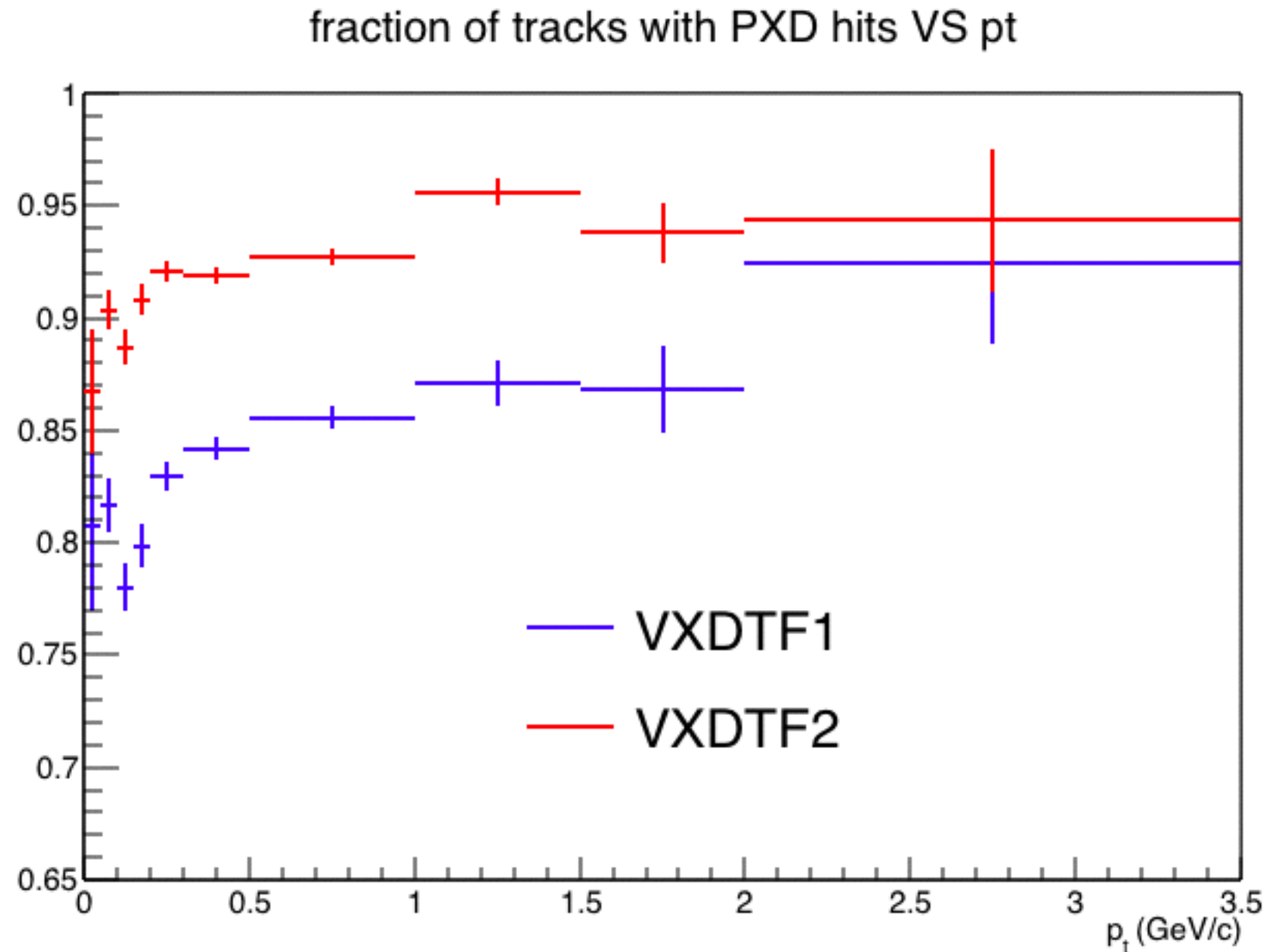
➔ VXDTF2 improves the performances especially at low p_T , below 200 MeV/c.

Efficiency vs theta ~ no ROI & no Bkg



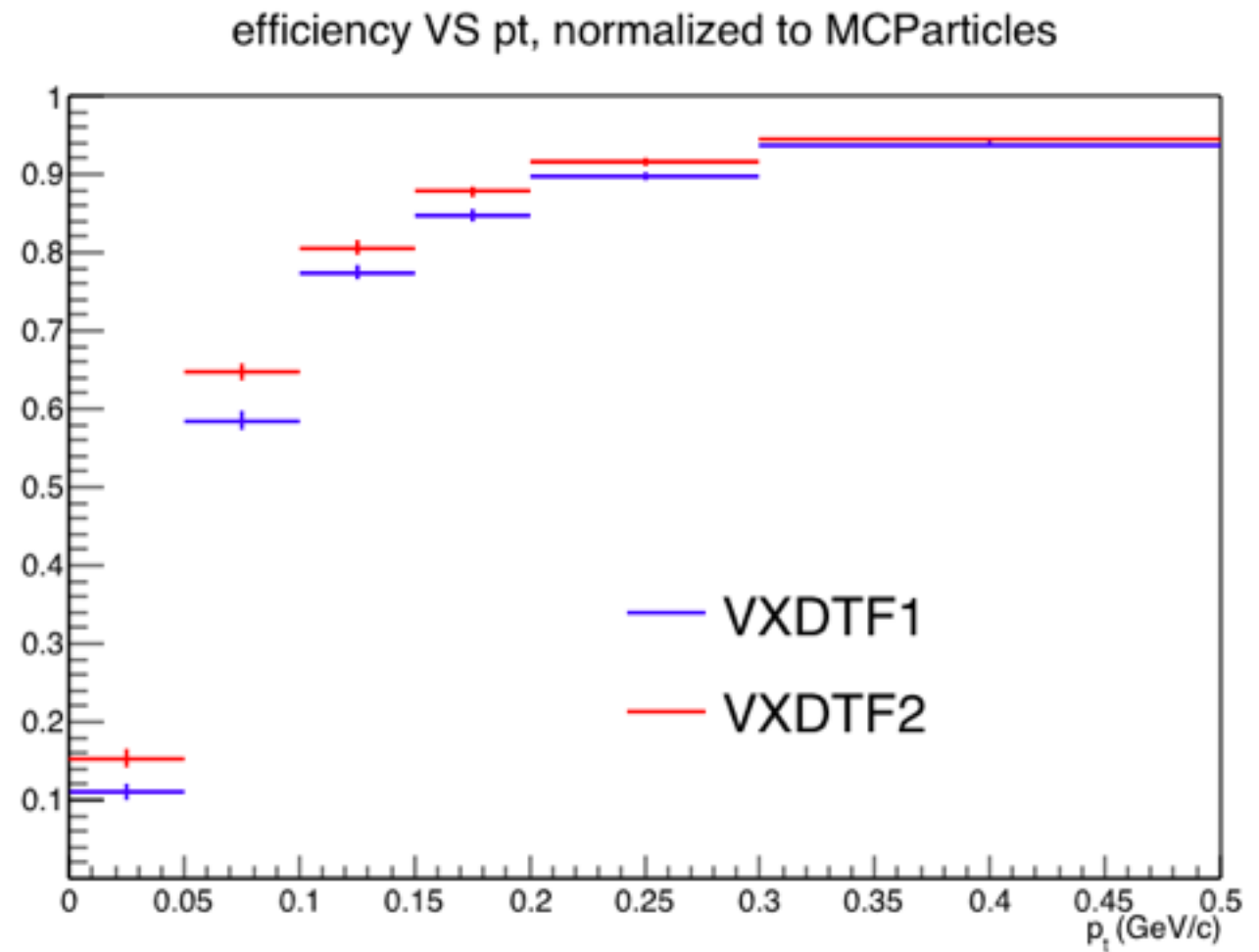
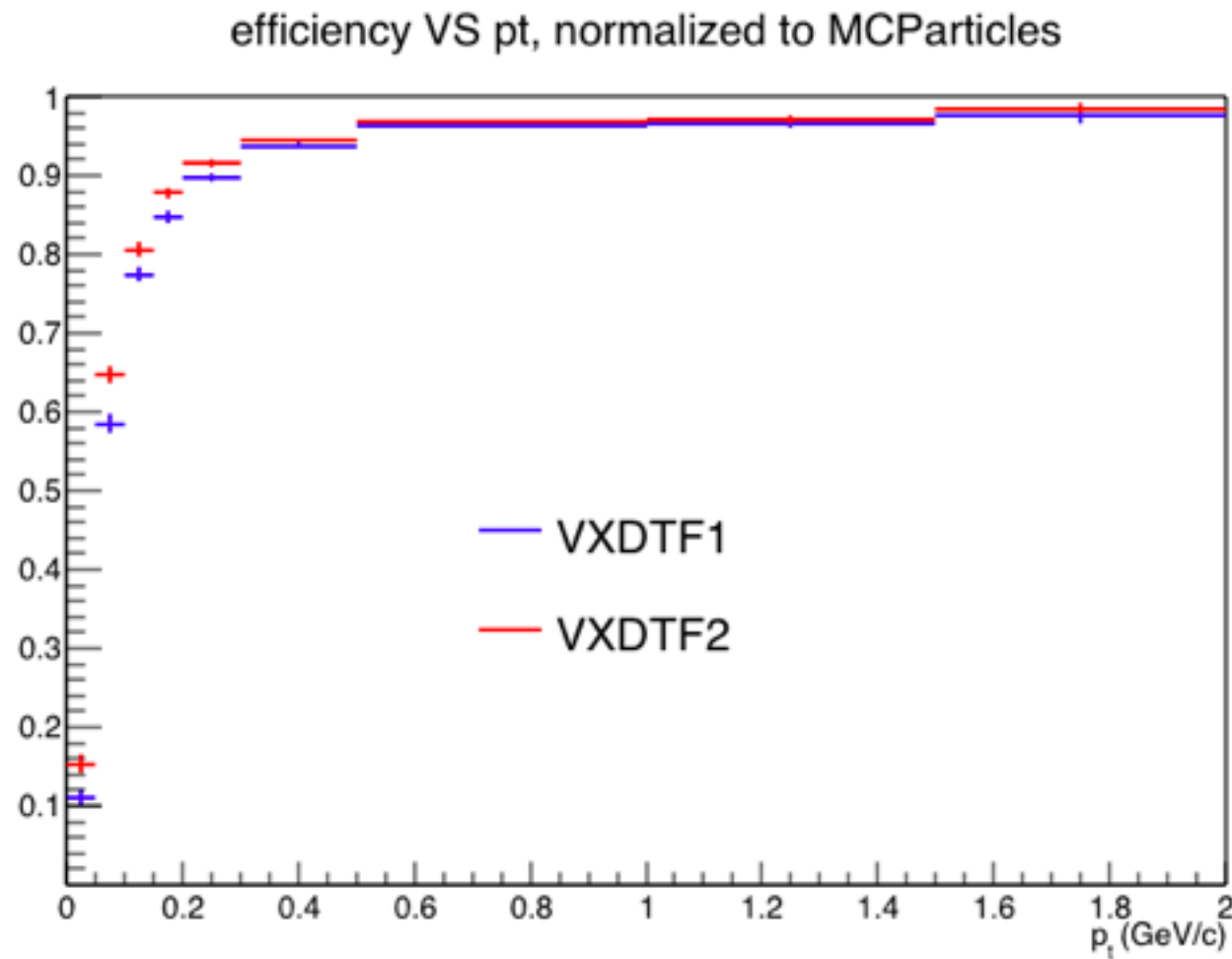
➔ VXDTF2 improves in the forward and backward regions

Fraction of Tracks with PXD Hits no ROI & no Bkg



→ VXDTF2 increases significantly the fraction of tracks with associated PXD hits. Very important for physics!!

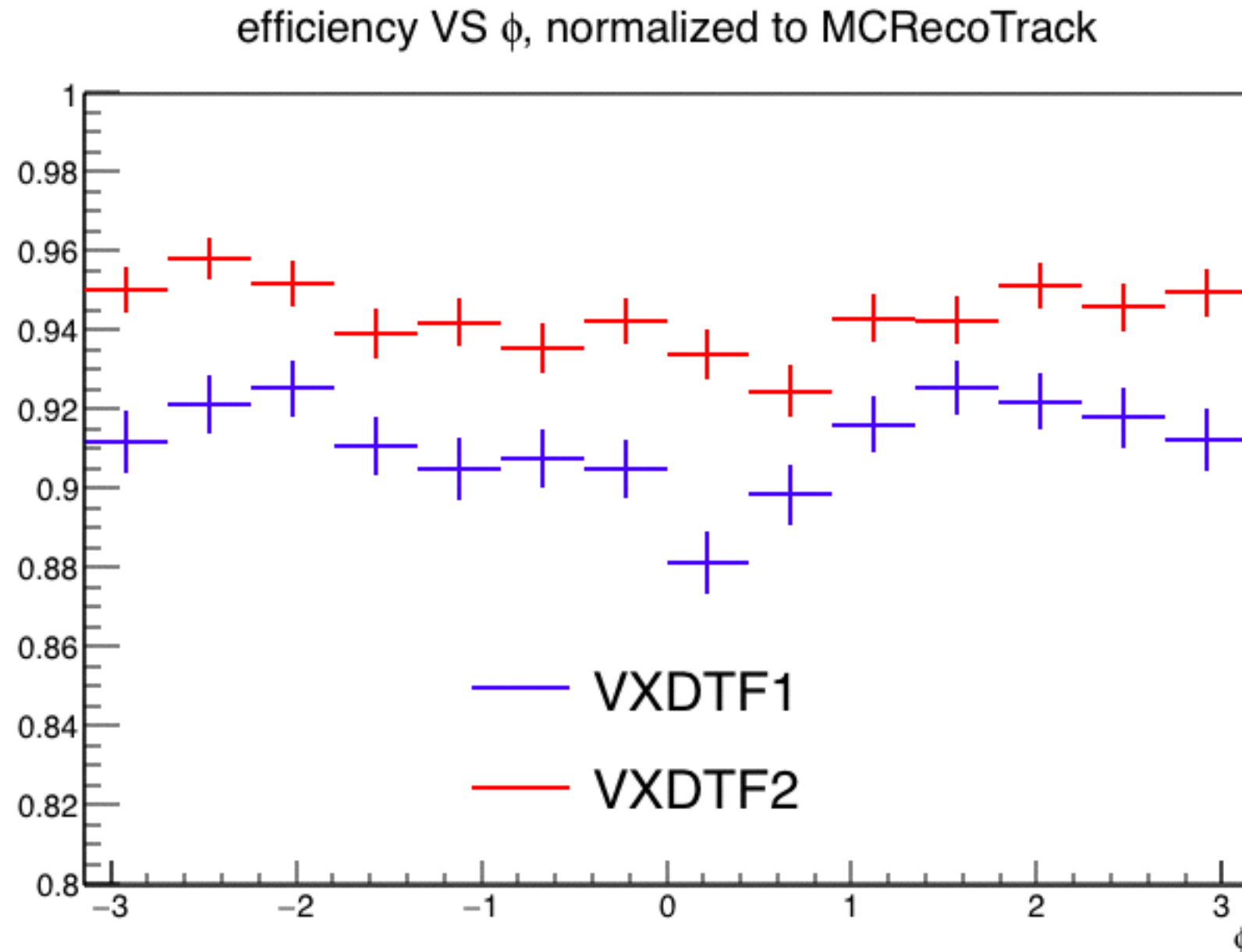
Efficiency vs $p_T \sim$ no ROI & no Bkg



➔ “Physics efficiency”, normalized to MCParticles, including geometrical acceptance.

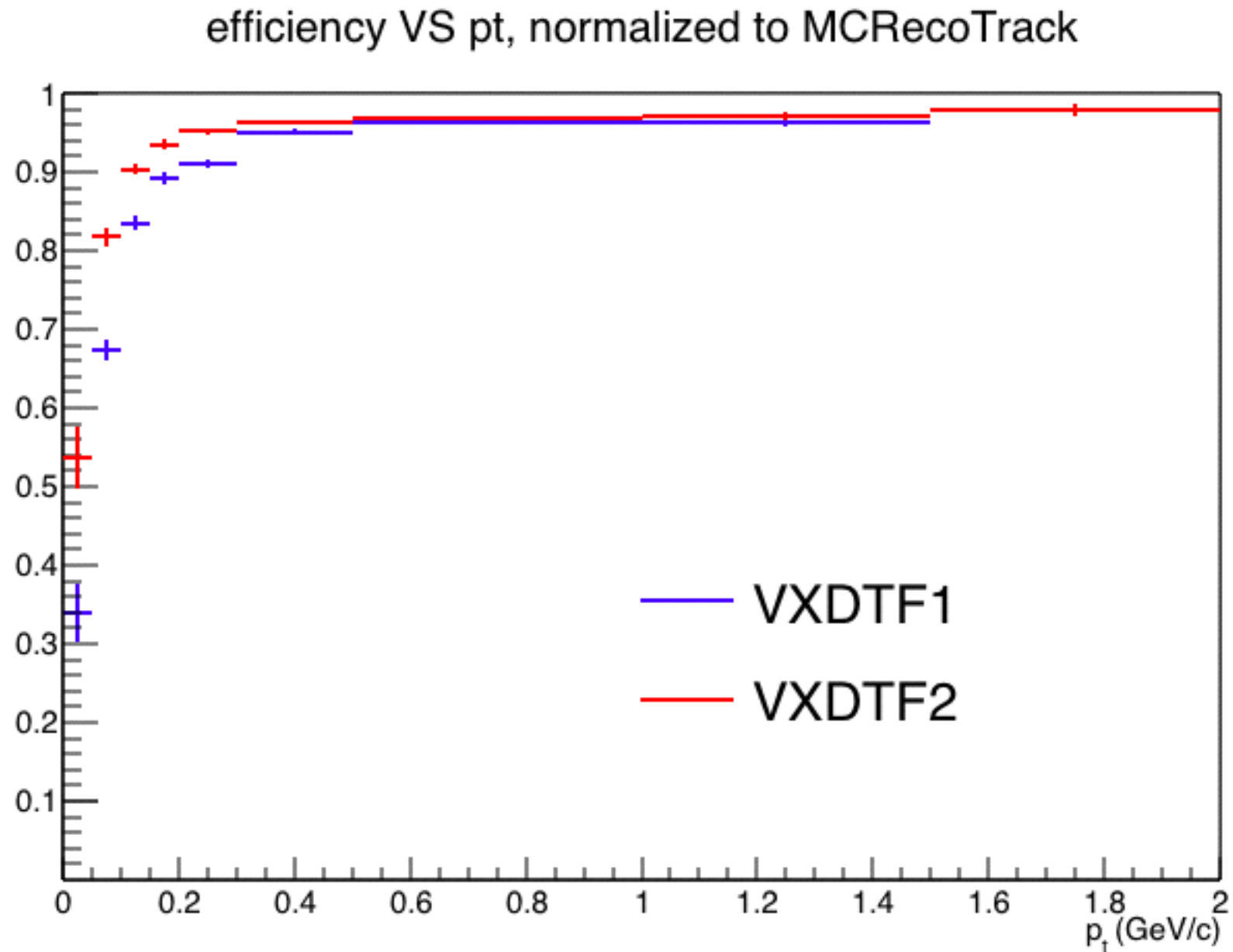
Efficiency vs ϕ ~ ROI on & std bkg

(*) the sector maps used in the reconstruction are trained without PXD Data Reduction



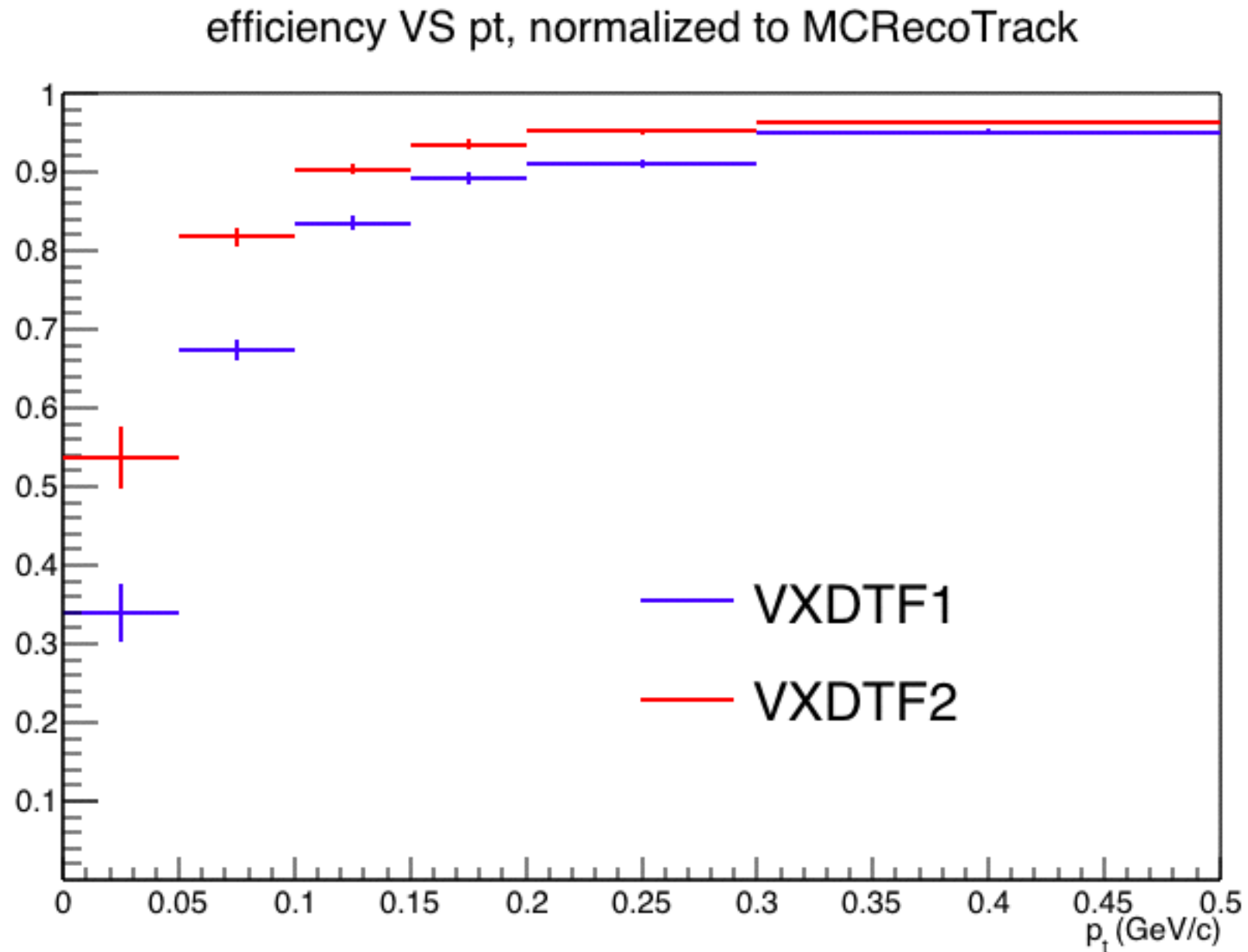
Efficiency vs $p_T \sim$ ROI on & std bkg

(*) the sector maps used in the reconstruction are trained without PXD Data Reduction



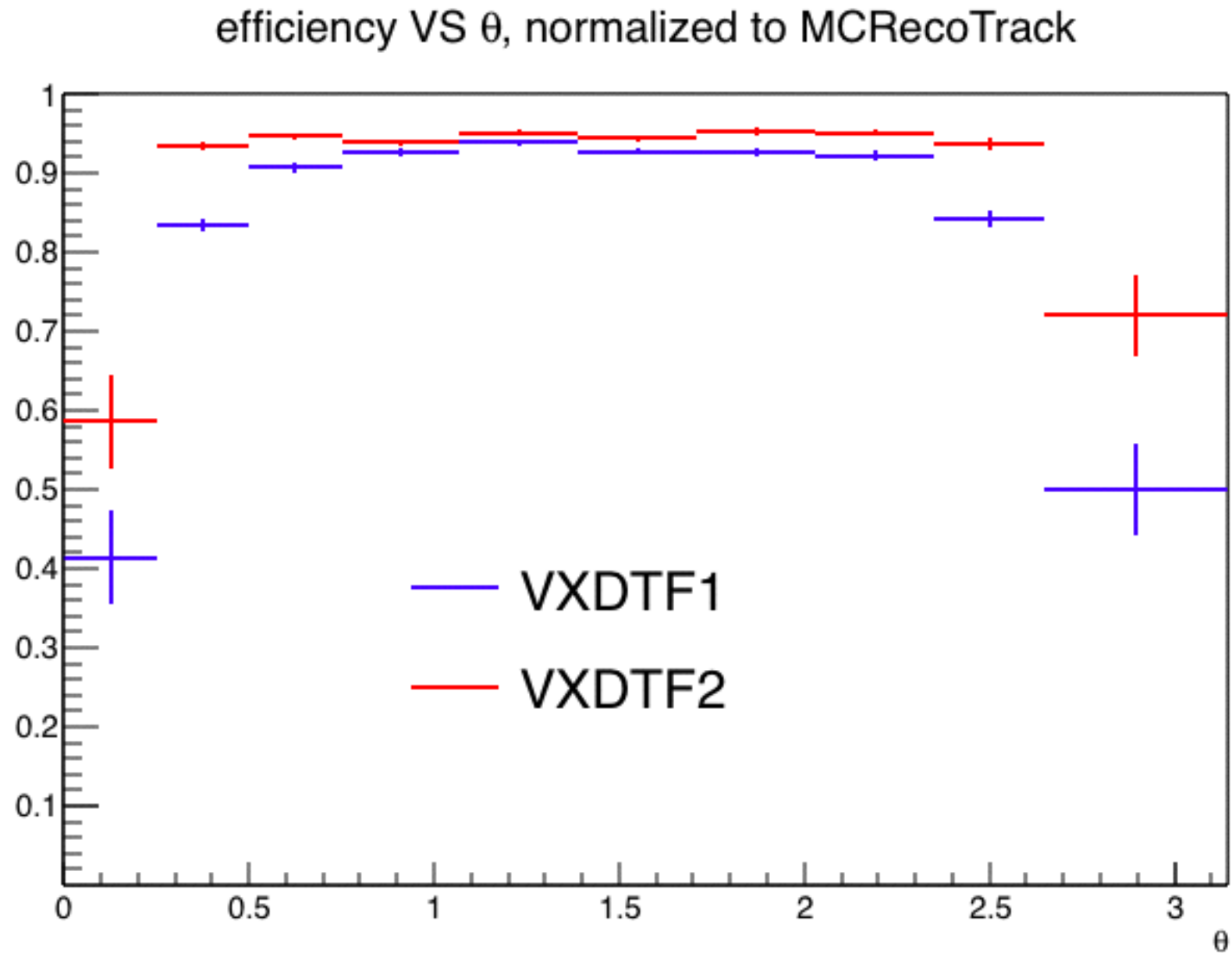
Efficiency vs $p_T \sim$ ROI on & std bkg

(*) the sector maps used in the reconstruction are trained without PXD Data Reduction



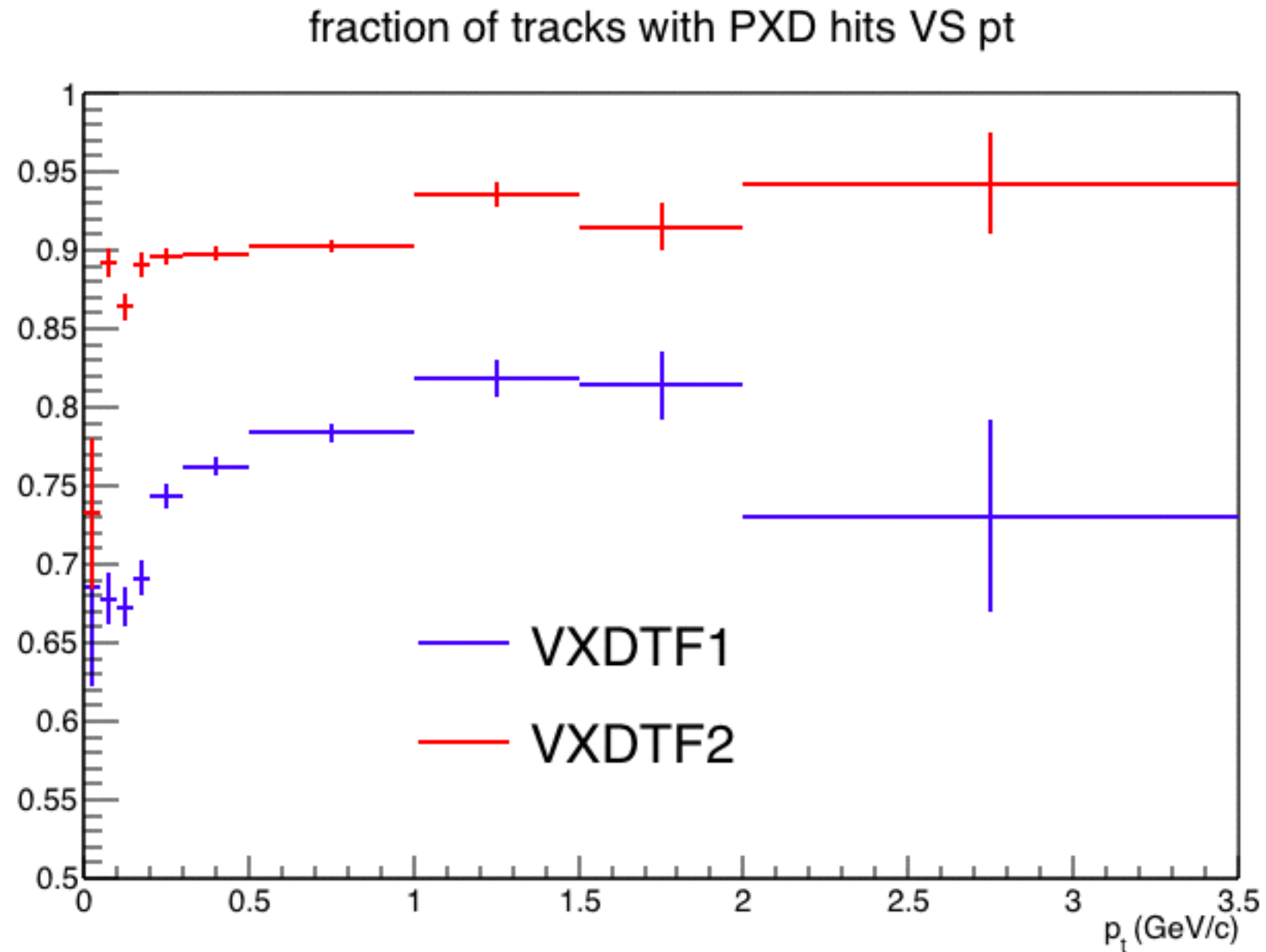
Efficiency vs theta ~ ROI on & std bkg

(*) the sector maps used in the reconstruction are trained without PXD Data Reduction



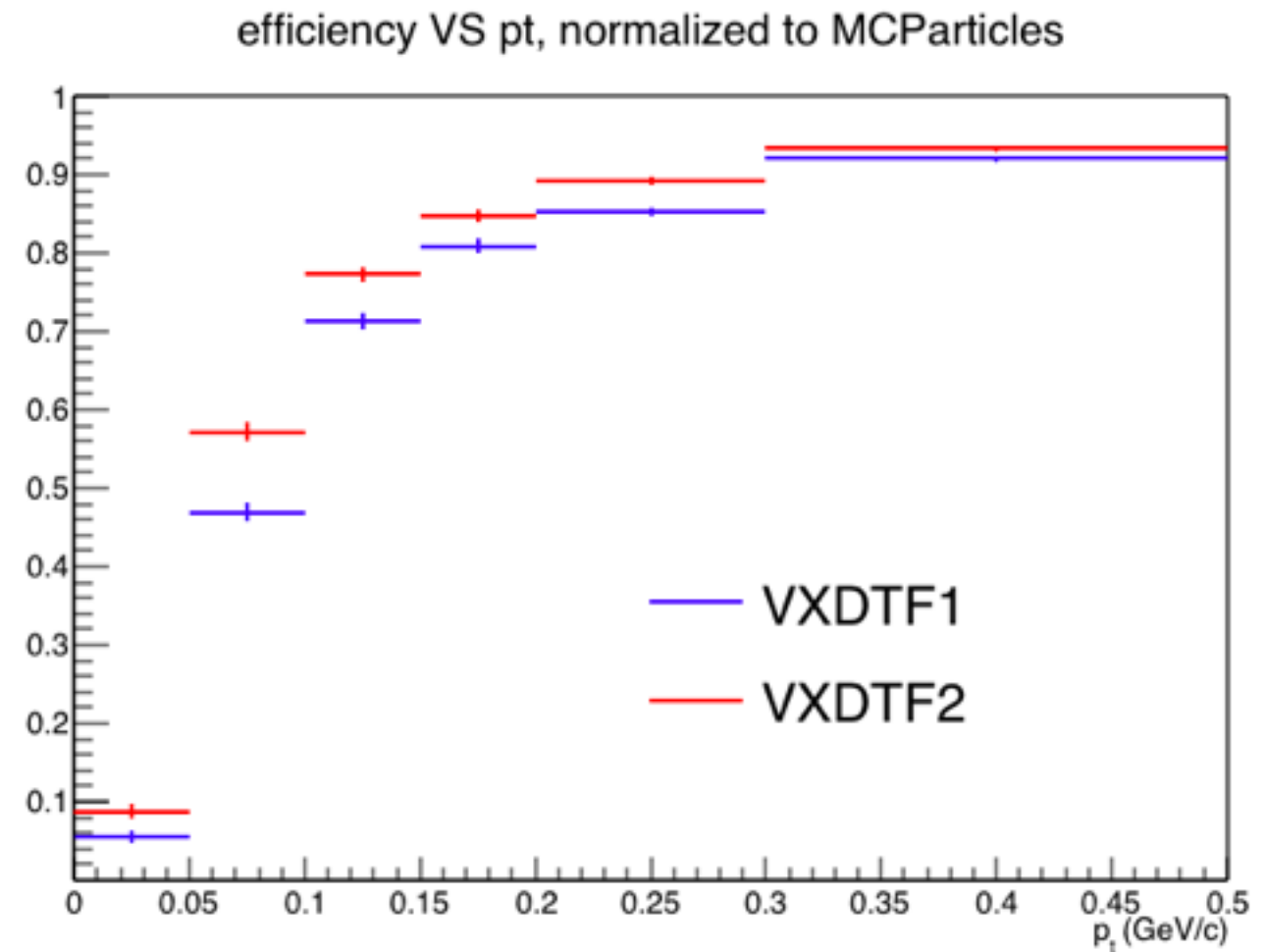
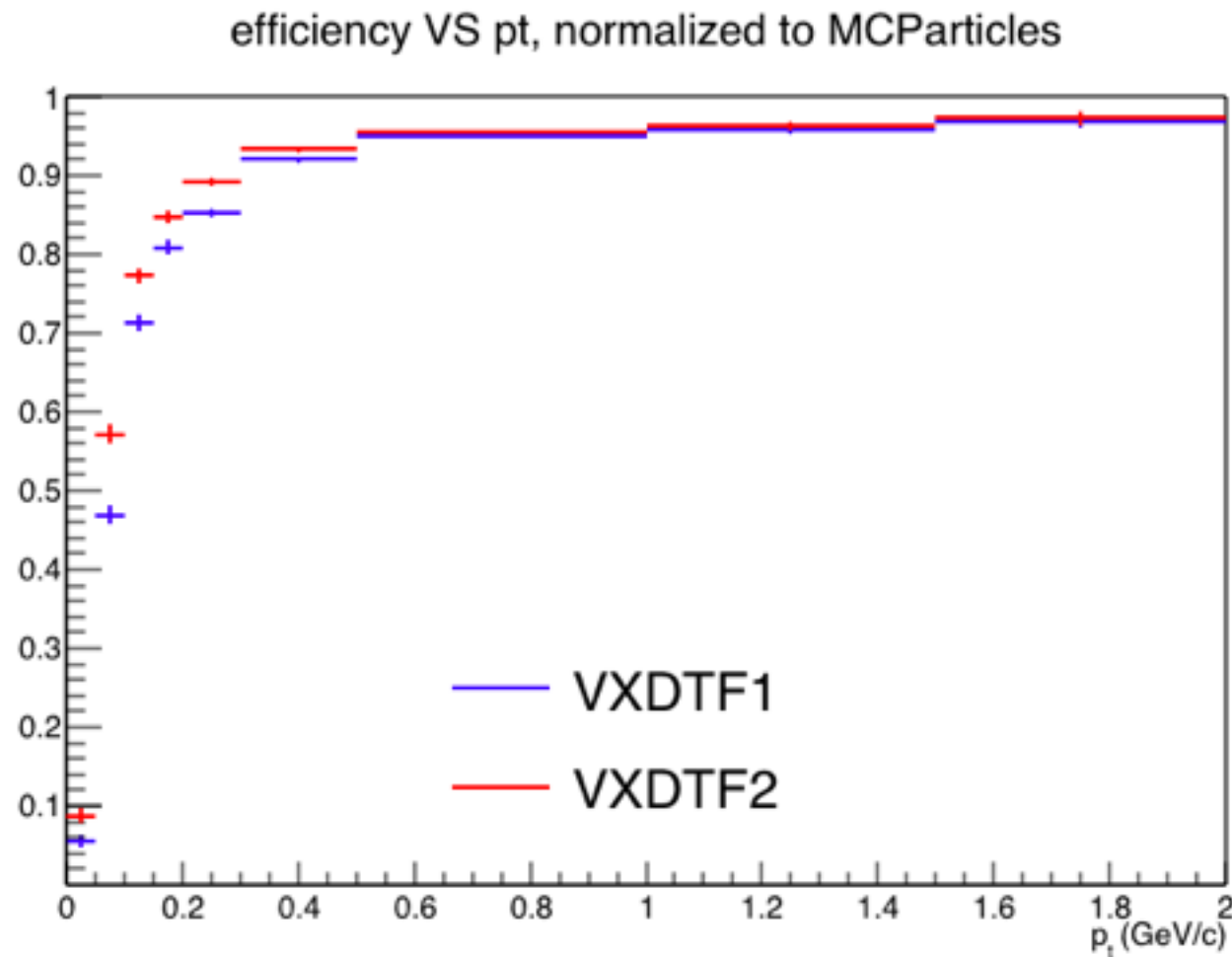
Fraction of Tracks with PXD Hits, ROI on & std bkg

(*) the sector maps used in the reconstruction are trained without PXD Data Reduction



Efficiency vs $p_T \sim$ ROI on & std bkg

(*) the sector maps used in the reconstruction are trained without PXD Data Reduction



➔ “Physics efficiency”, normalized to MCParticles, including geometrical acceptance.

Conclusions

- ➔ Preview of VXDTF2 performances is very very promising! Additional results will be prepared with the pre-release for the B2GM
- ➔ An issue encountered in this study:
 - In order to save time in simulation, I have a steering file for each step, generation/simulation/reconstruction/plot creation. For fast studies I also have a steering file that includes everything.
 - When I have tried to produce these plots splitting the chain with the 4 steering files, the d_0 , z_0 and omega residuals were completely screw.
 - When I have used the single steering file, they look perfect.
 - It could be that there is a stupid misconfiguration, but I have not found it.
 - I will commit the scripts to the master after the meeting, if you are willing to take a look

