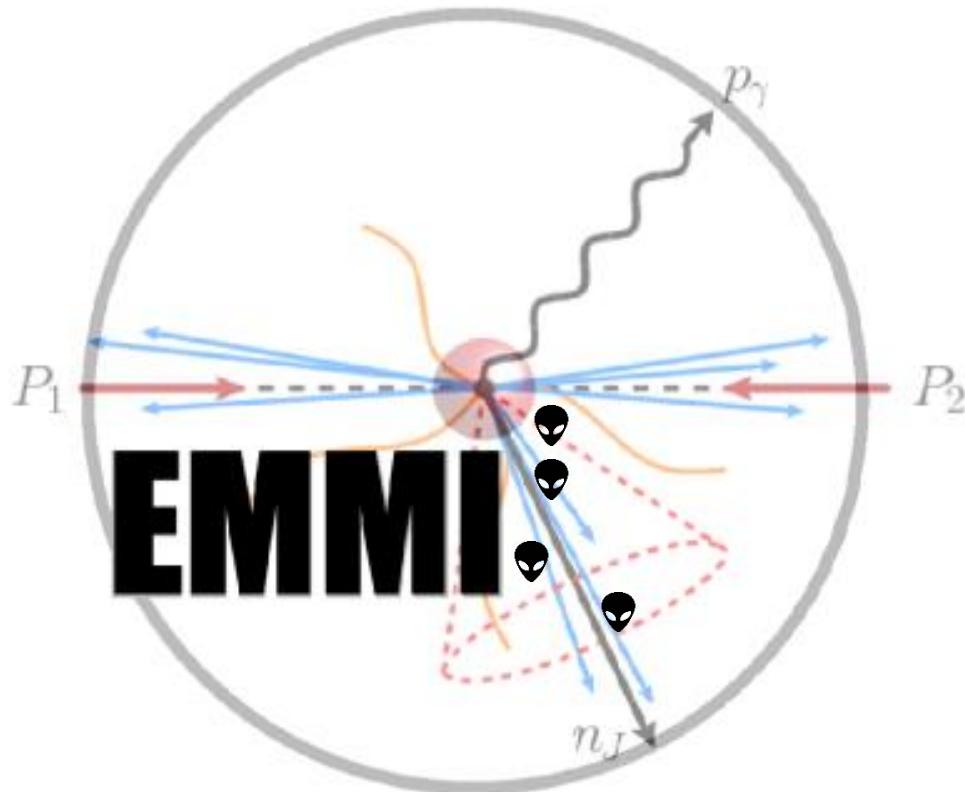
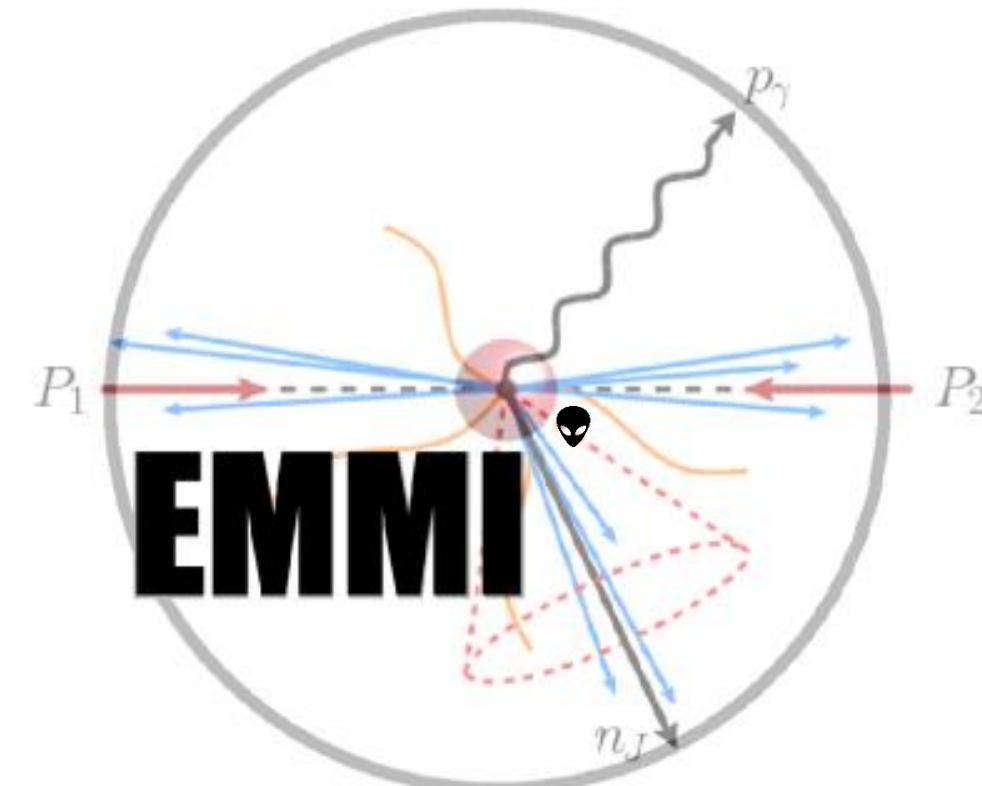


Status Report

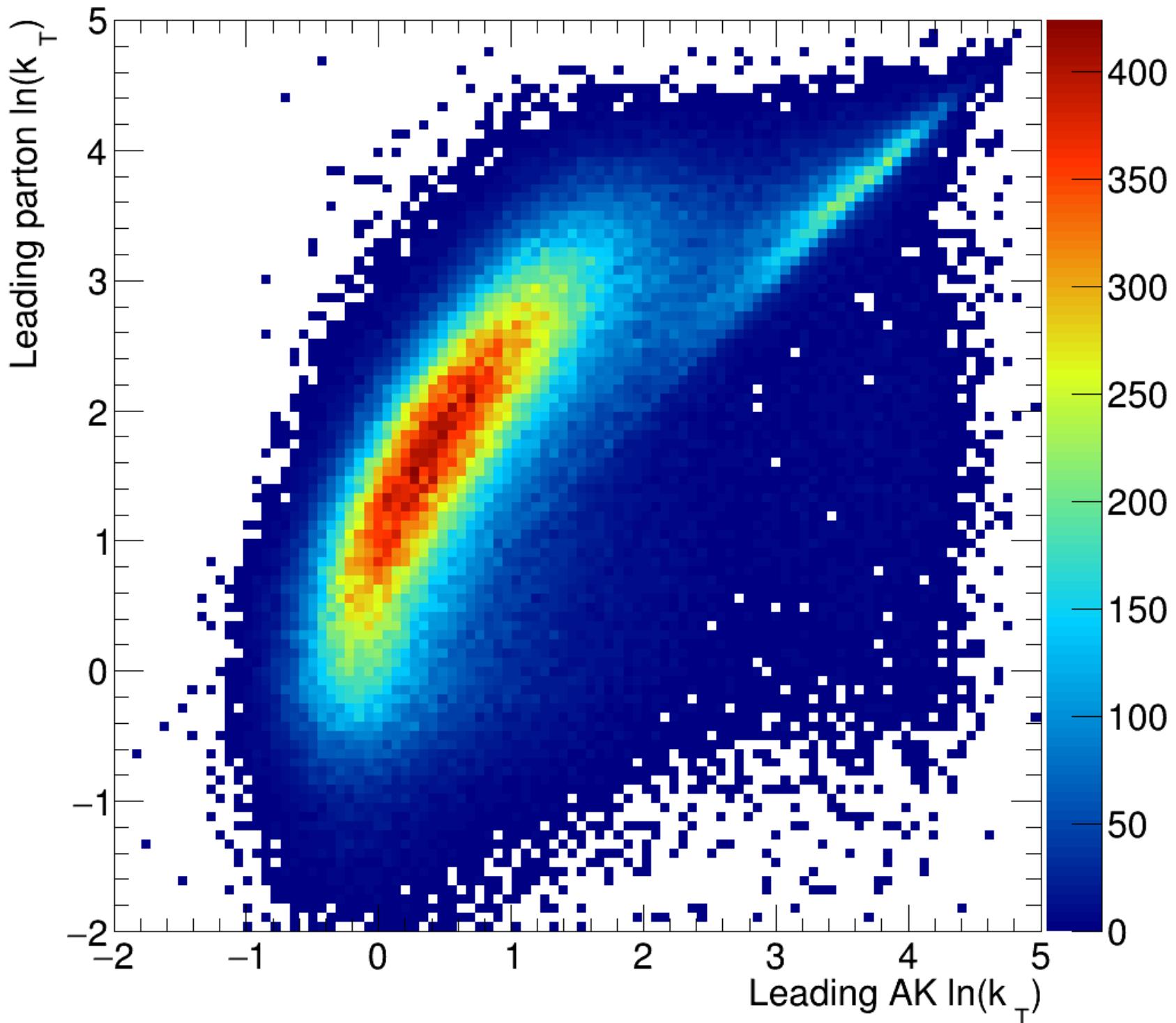


Let's go Lunni!

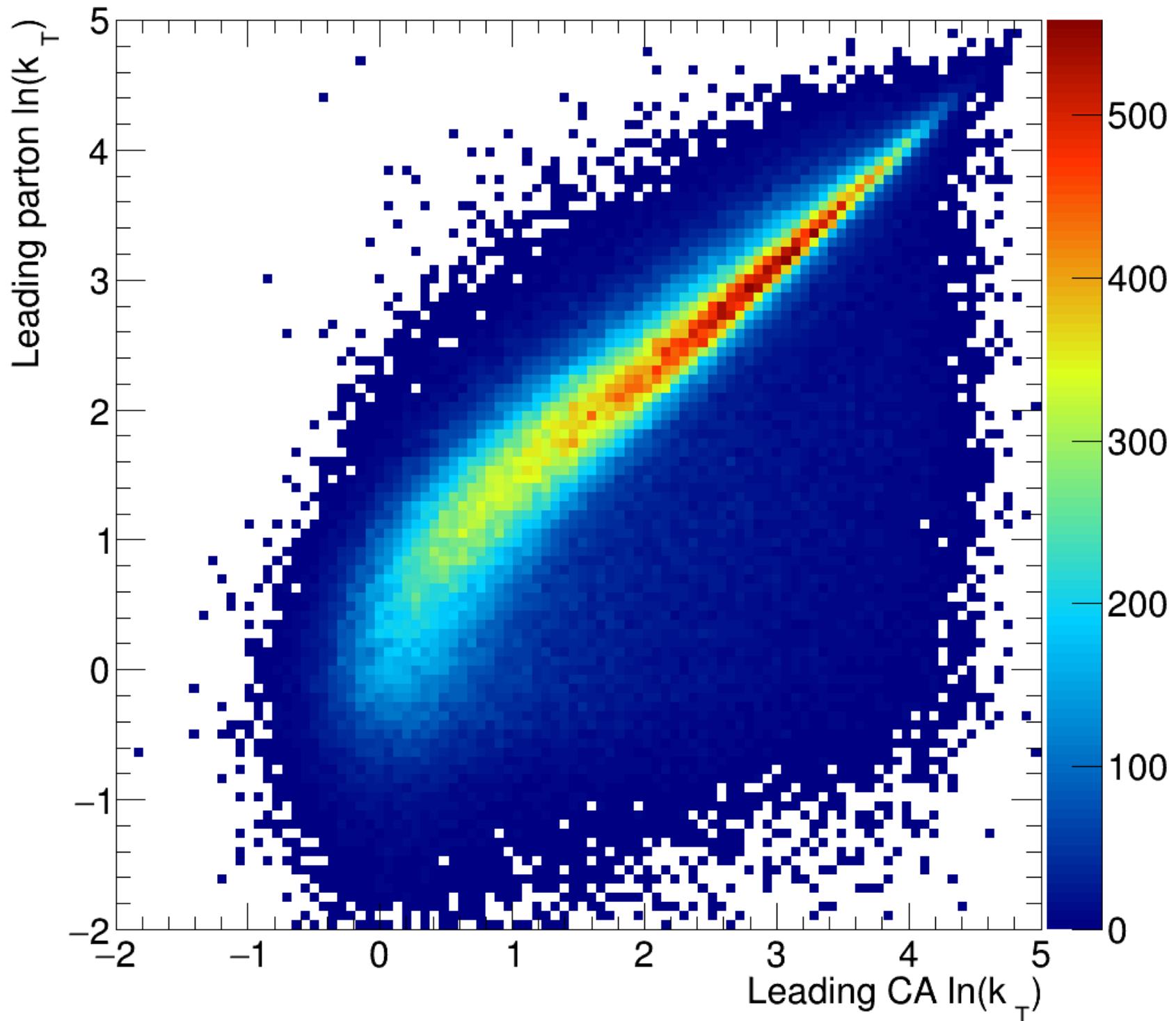
Performance of Leading KT Vertex



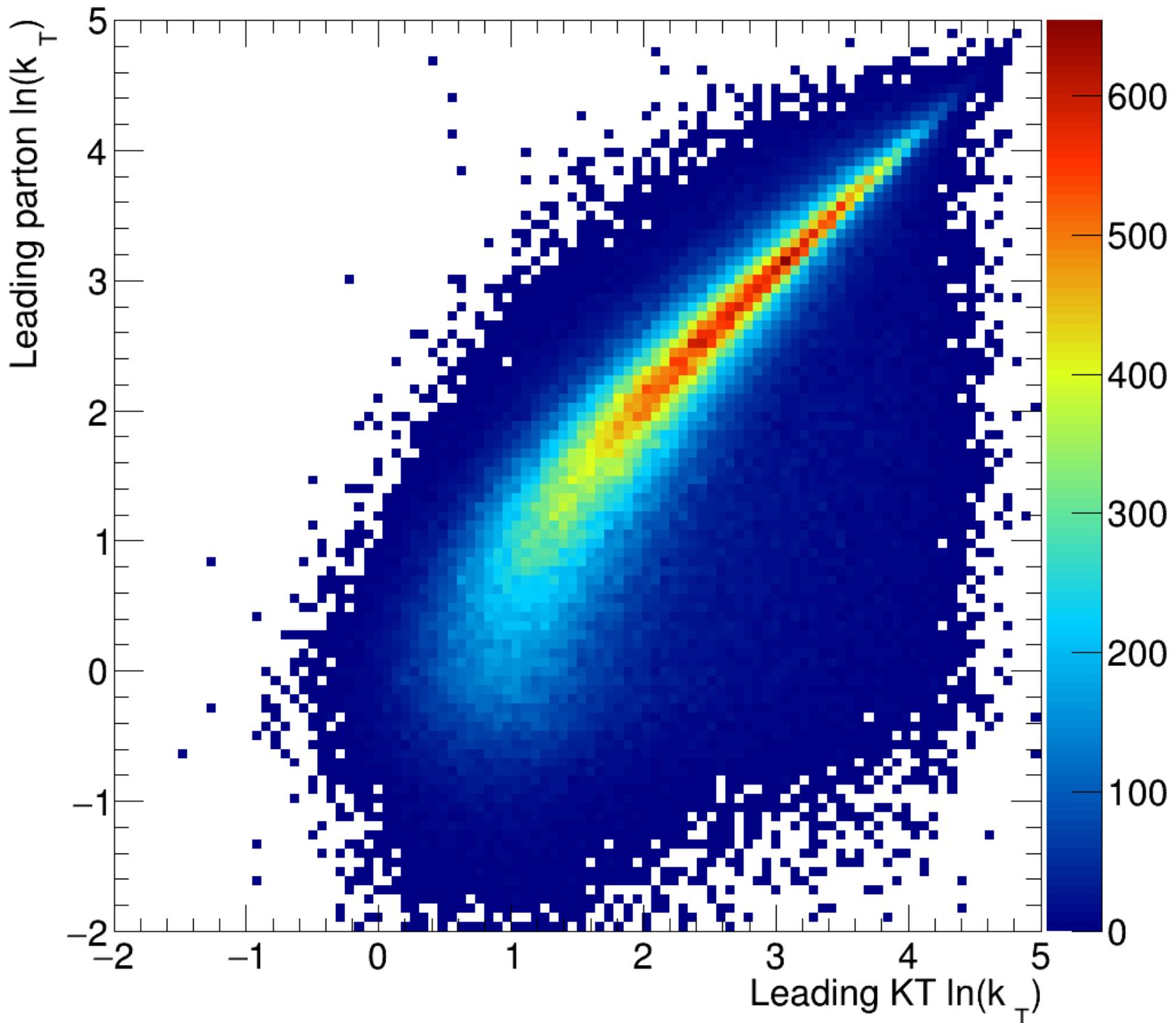
PYTHIA8 Pthat300 Jet pT>350 GeV



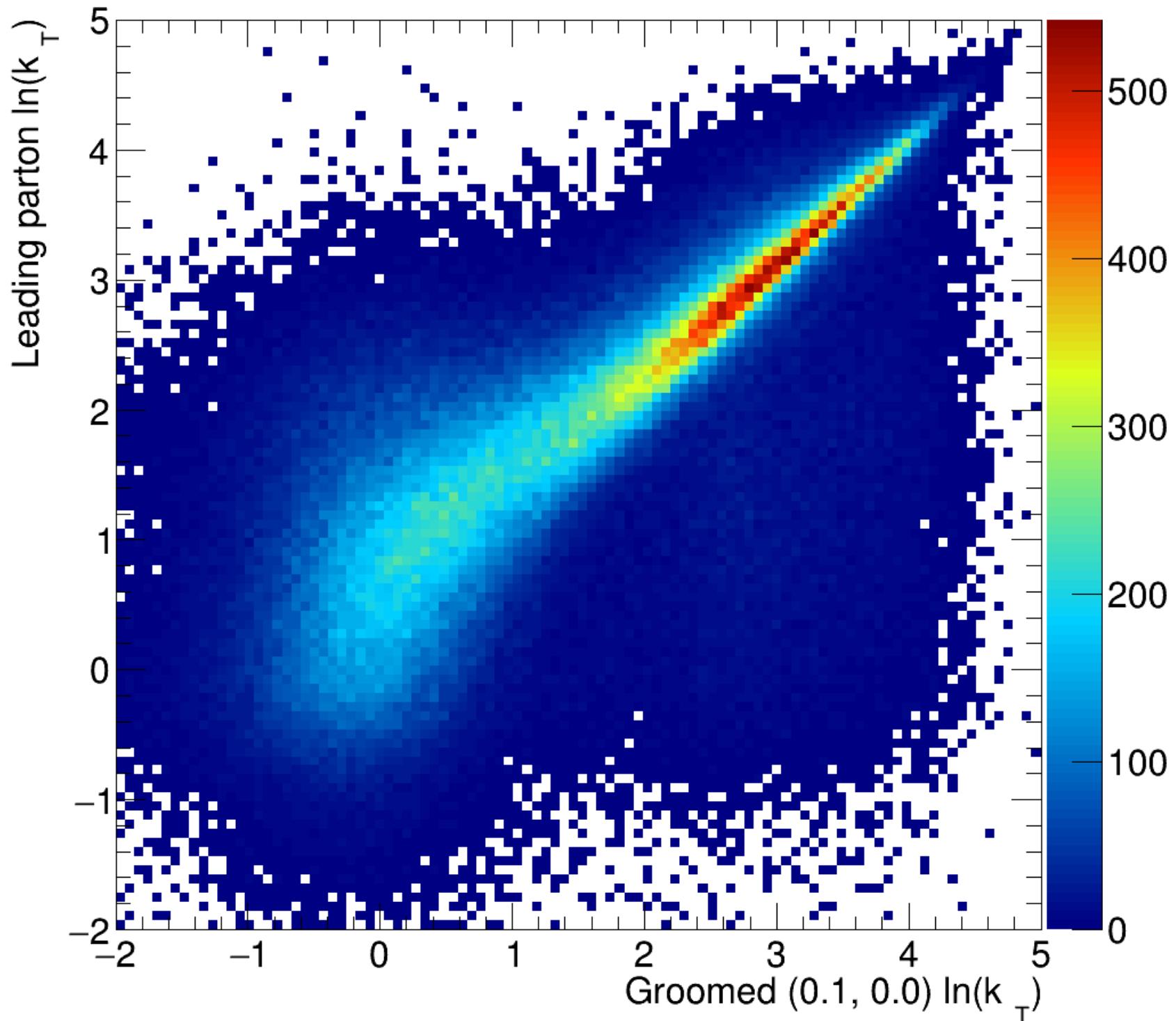
PYTHIA8 Pthat300 Jet pT>350 GeV



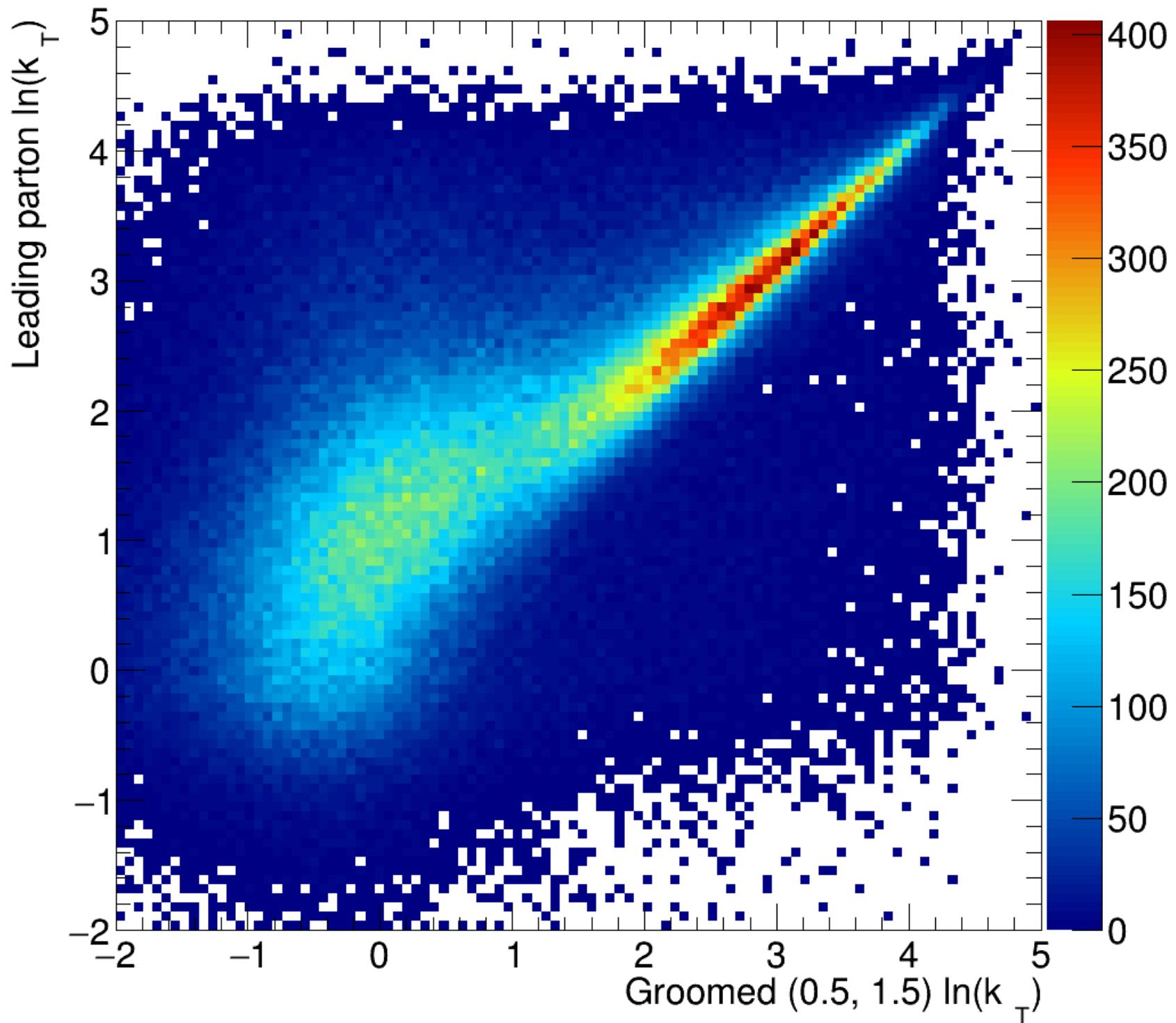
PYTHIA8 Pthat300 Jet pT>350 GeV



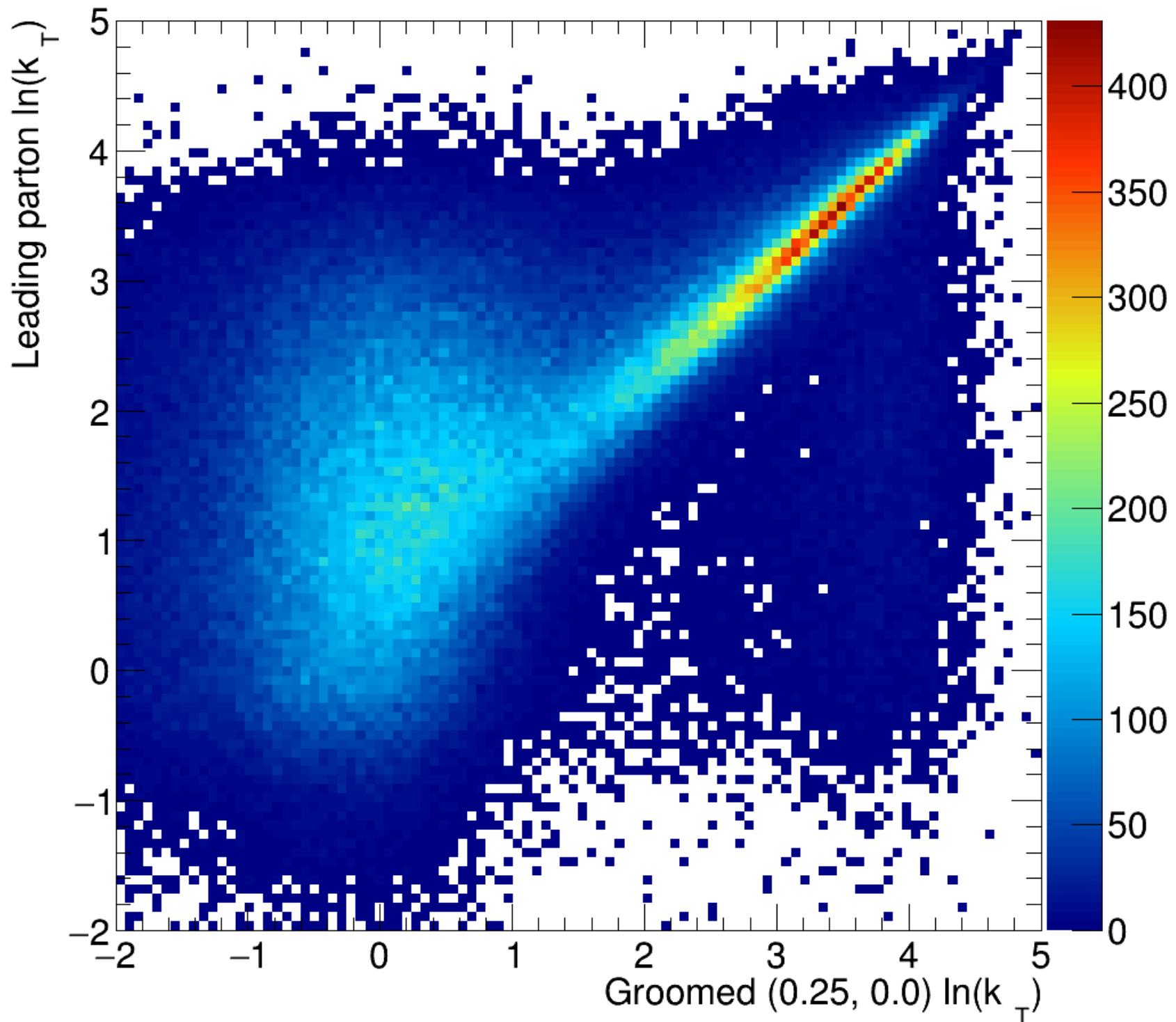
PYTHIA8 Pthat300 Jet pT>350 GeV



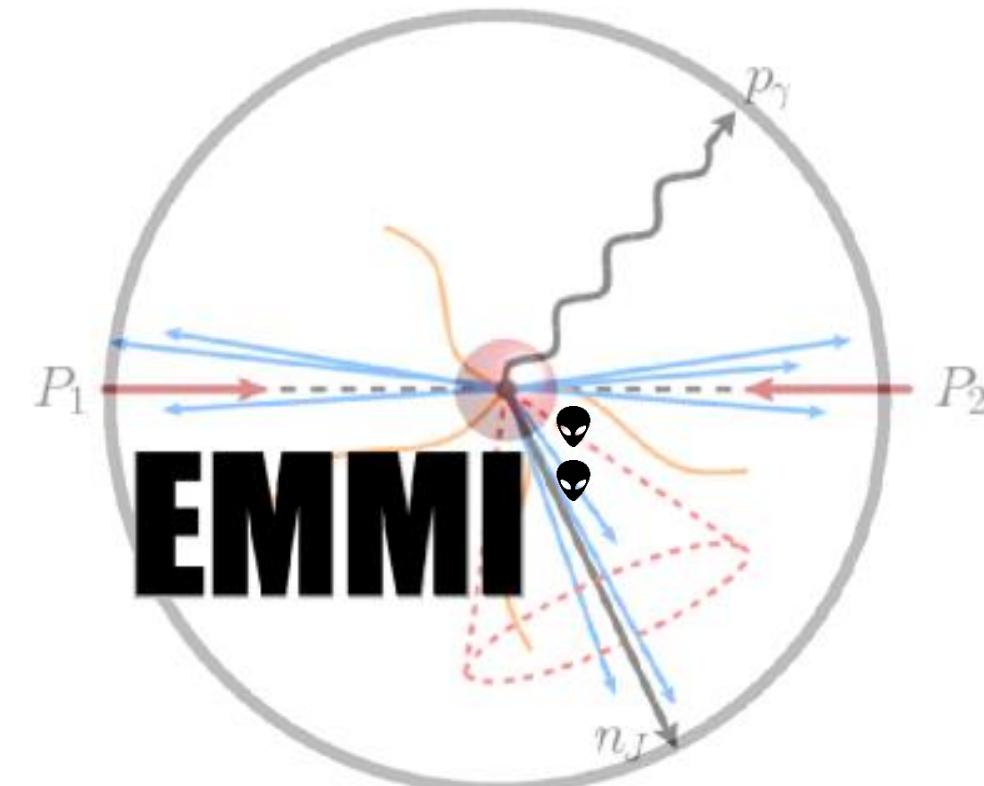
PYTHIA8 Pthat300 Jet pT>350 GeV



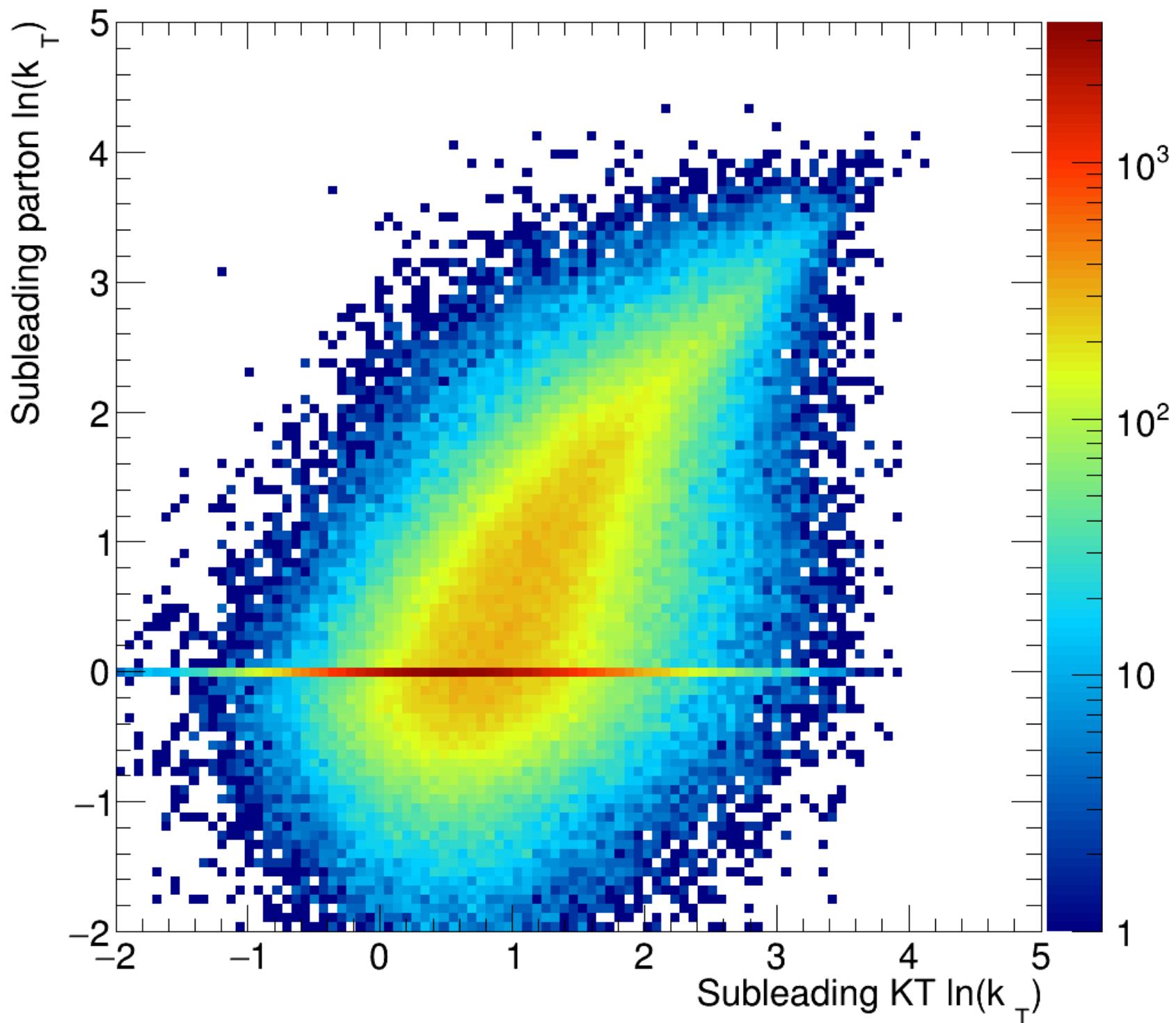
PYTHIA8 Pthat300 Jet pT>350 GeV



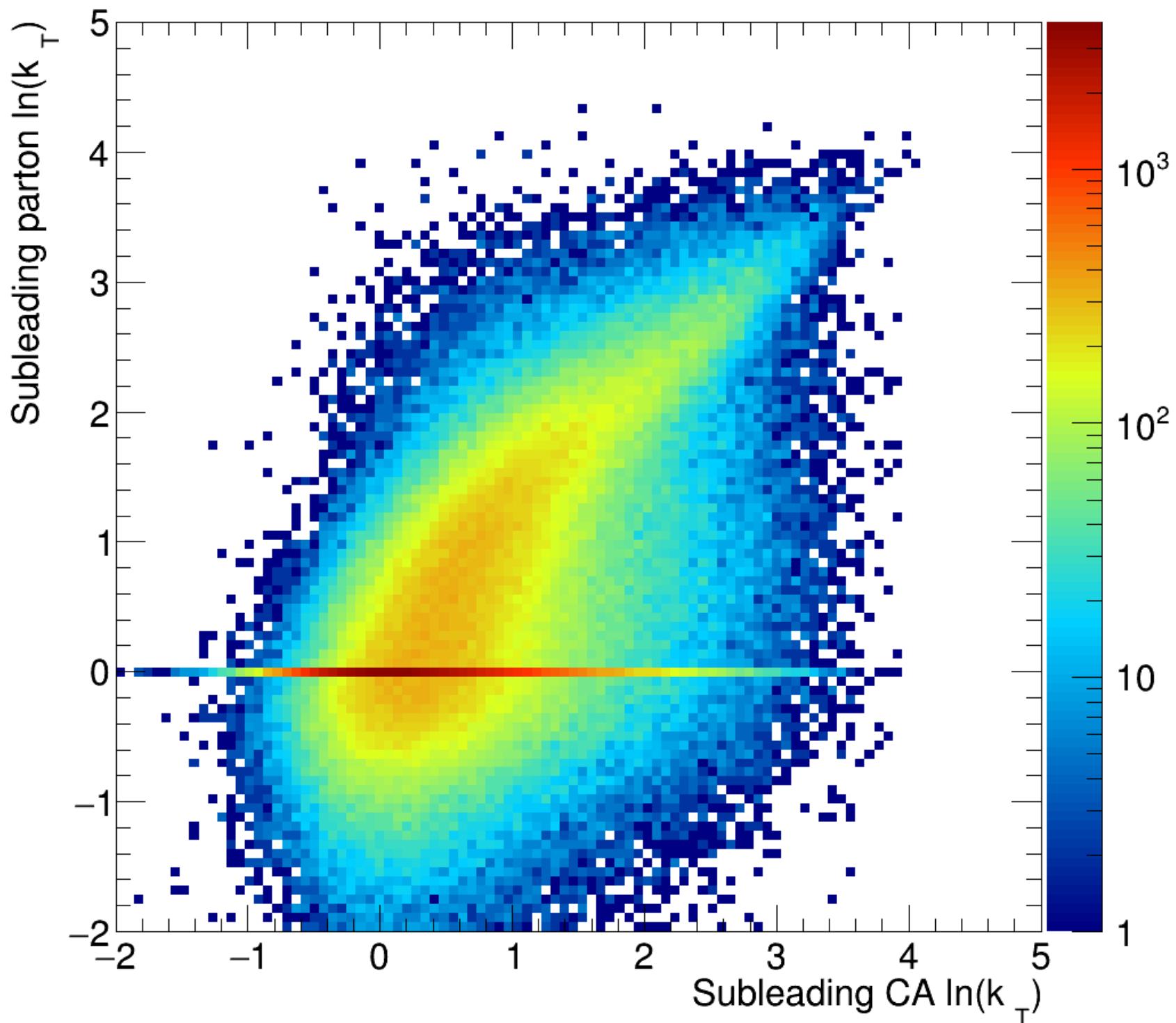
Performance of Subleading KT Vertex



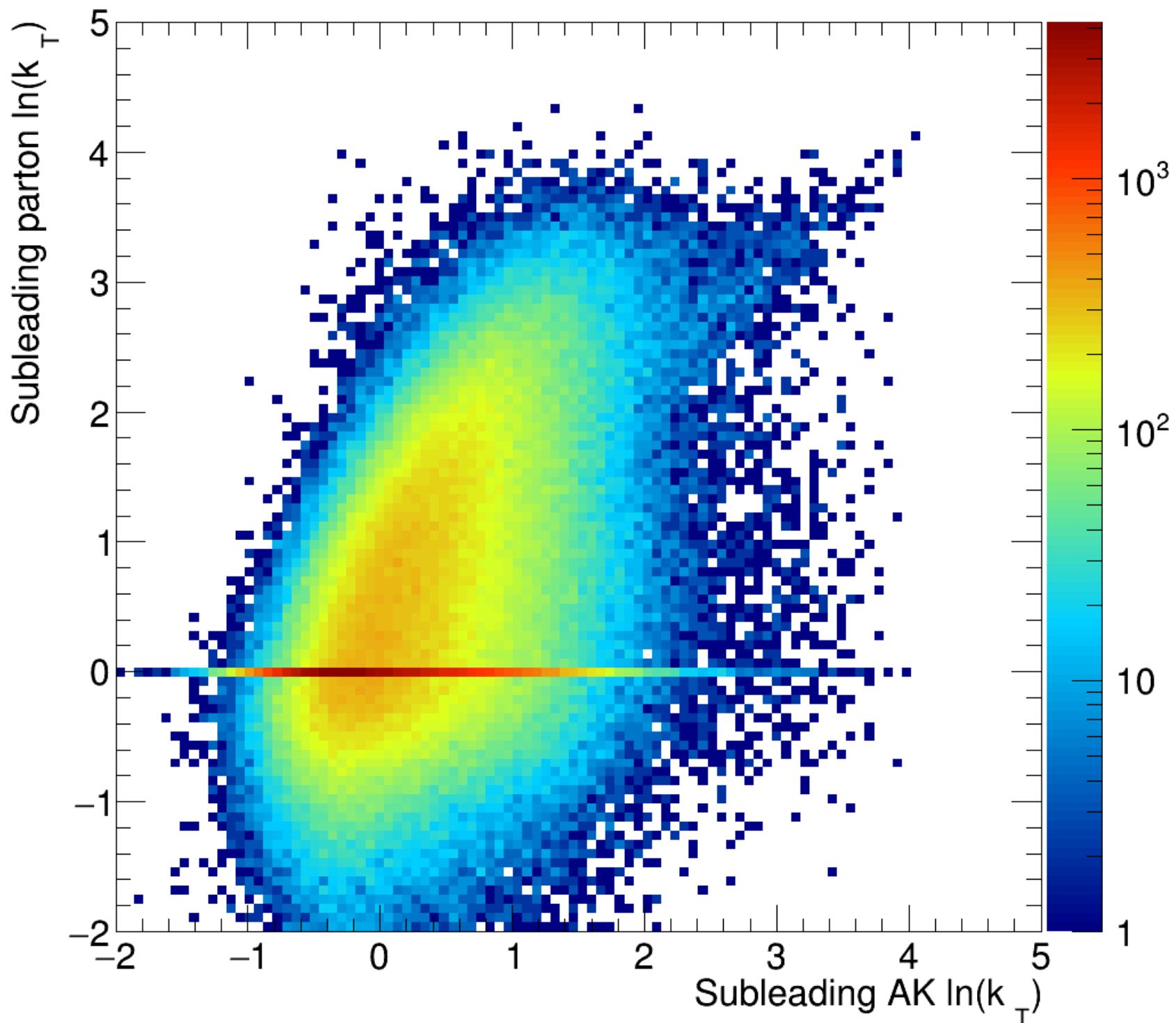
PYTHIA8 Pthat300 Jet pT>350 GeV



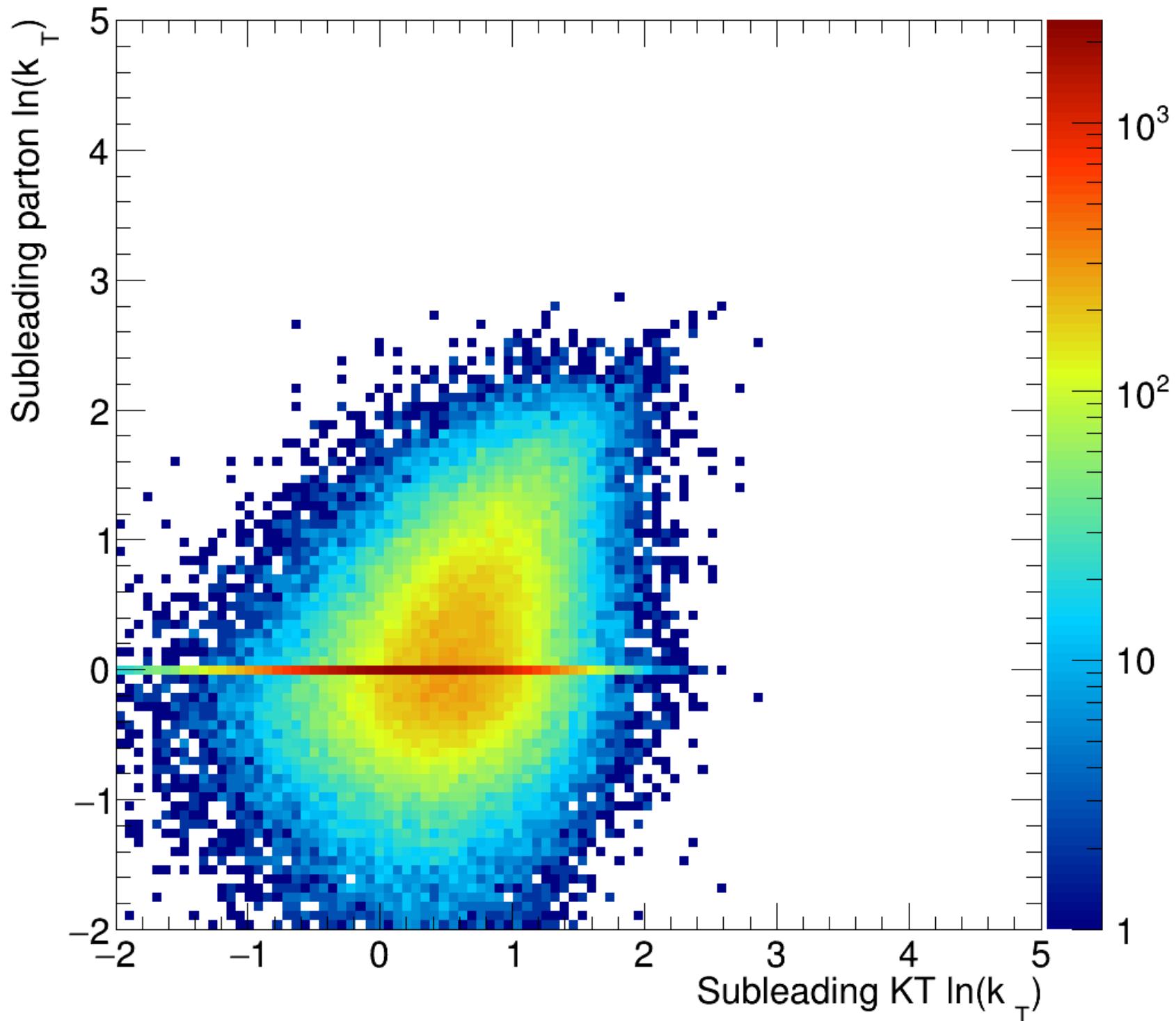
PYTHIA8 Pthat300 Jet pT>350 GeV



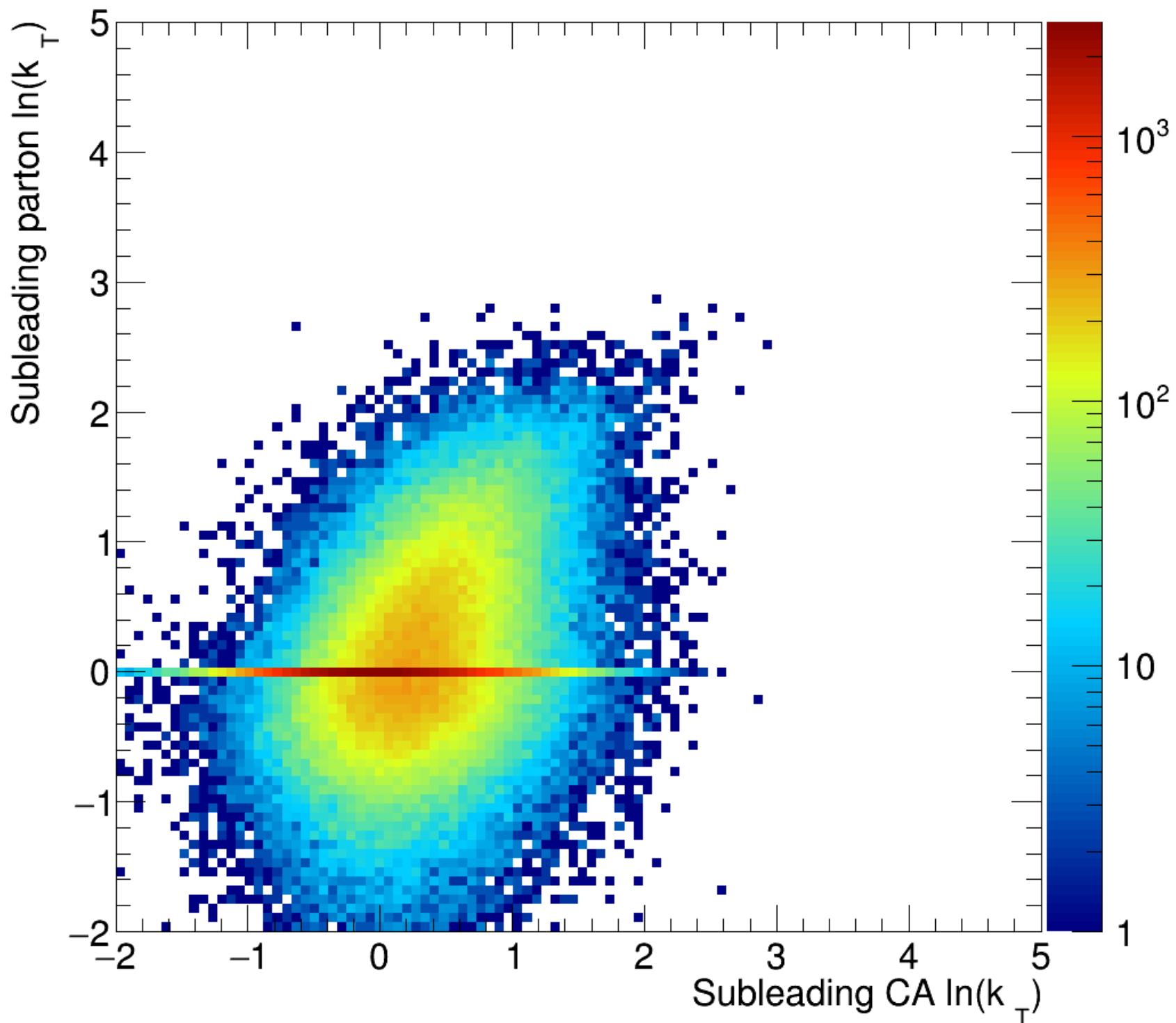
PYTHIA8 Pthat300 Jet pT>350 GeV



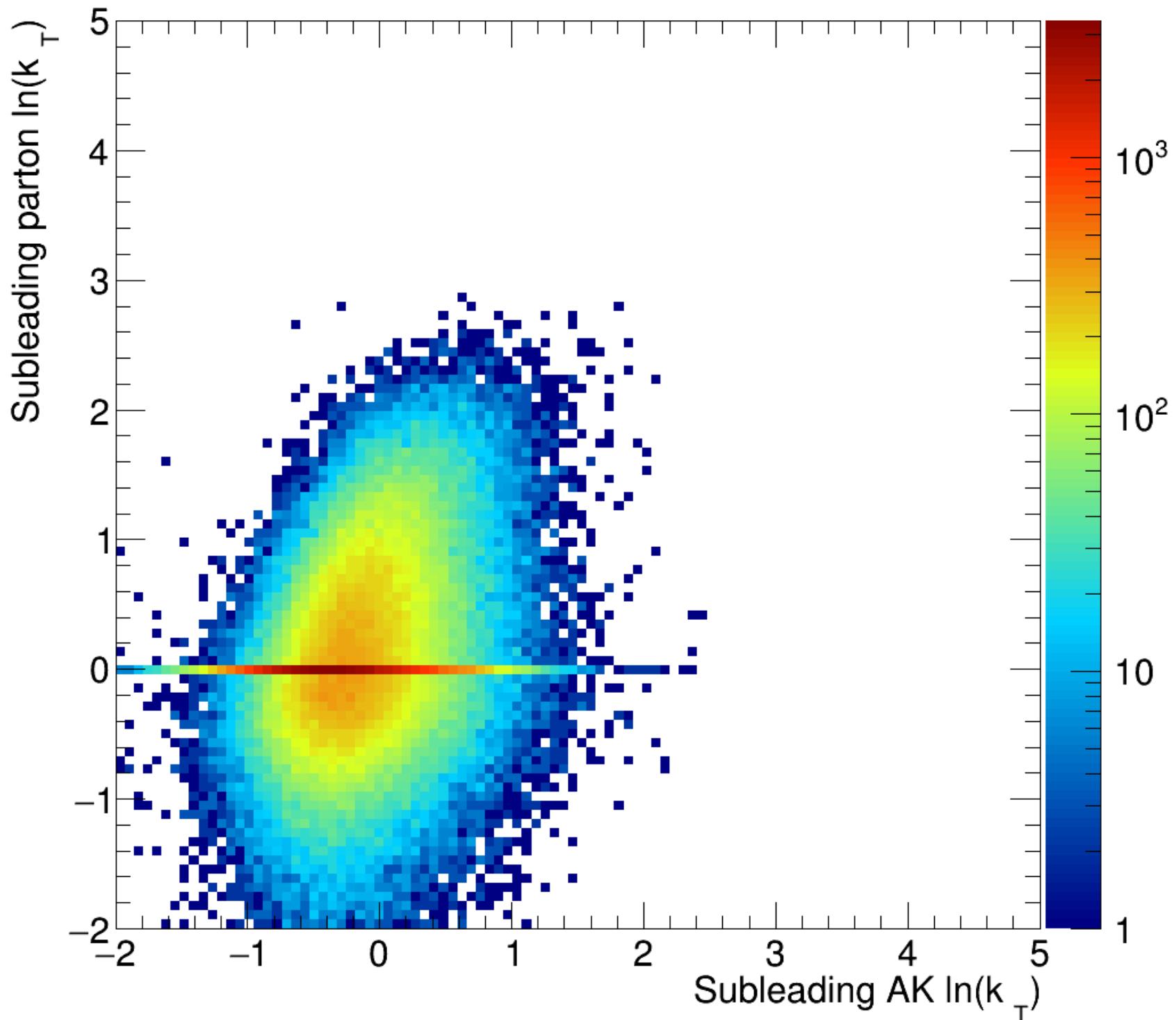
PYTHIA8 Pthat50 Jet pT>70 GeV



PYTHIA8 Pthat50 Jet pT>70 GeV



PYTHIA8 Pthat50 Jet pT>70 GeV

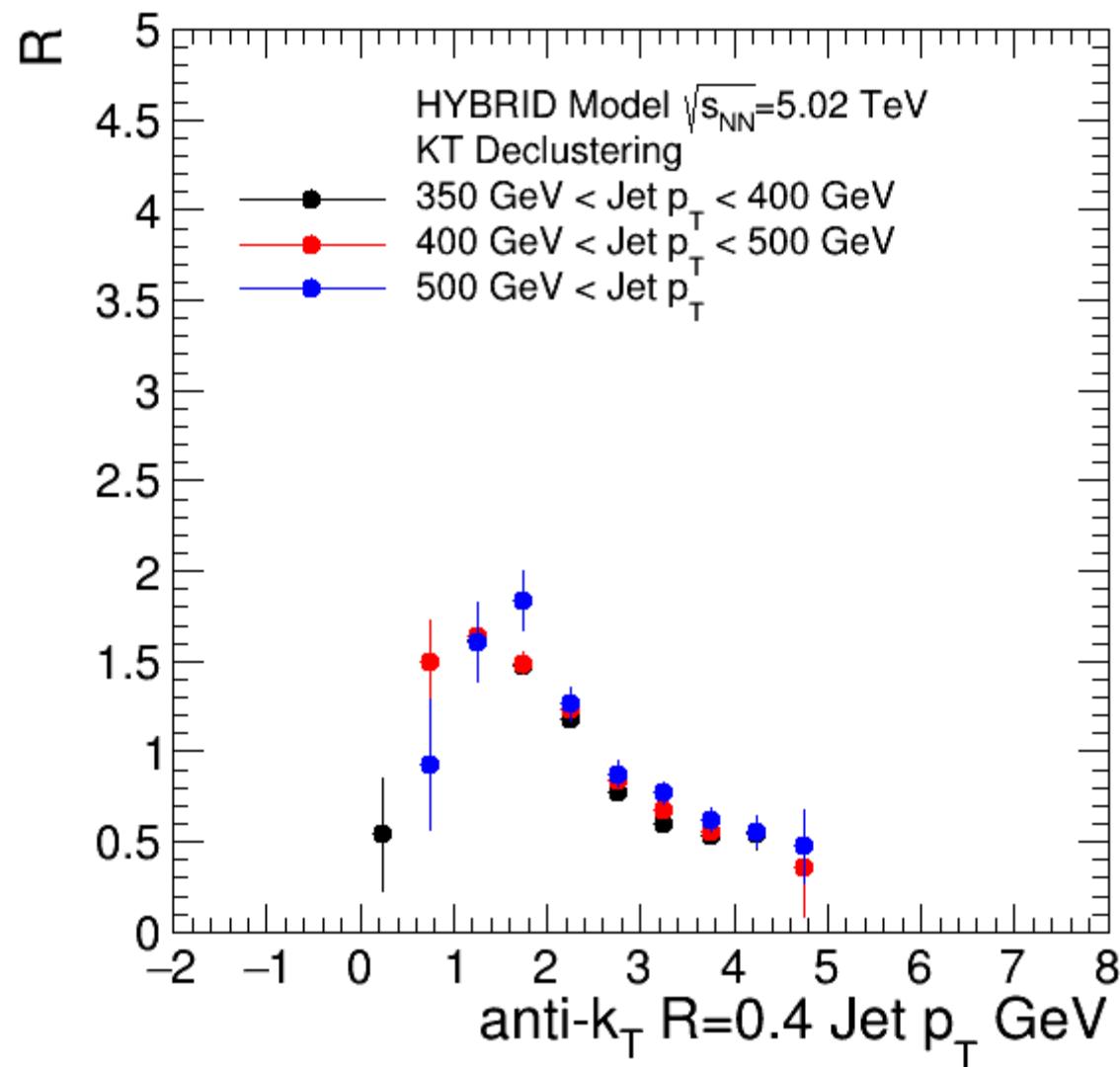


Physics Performance

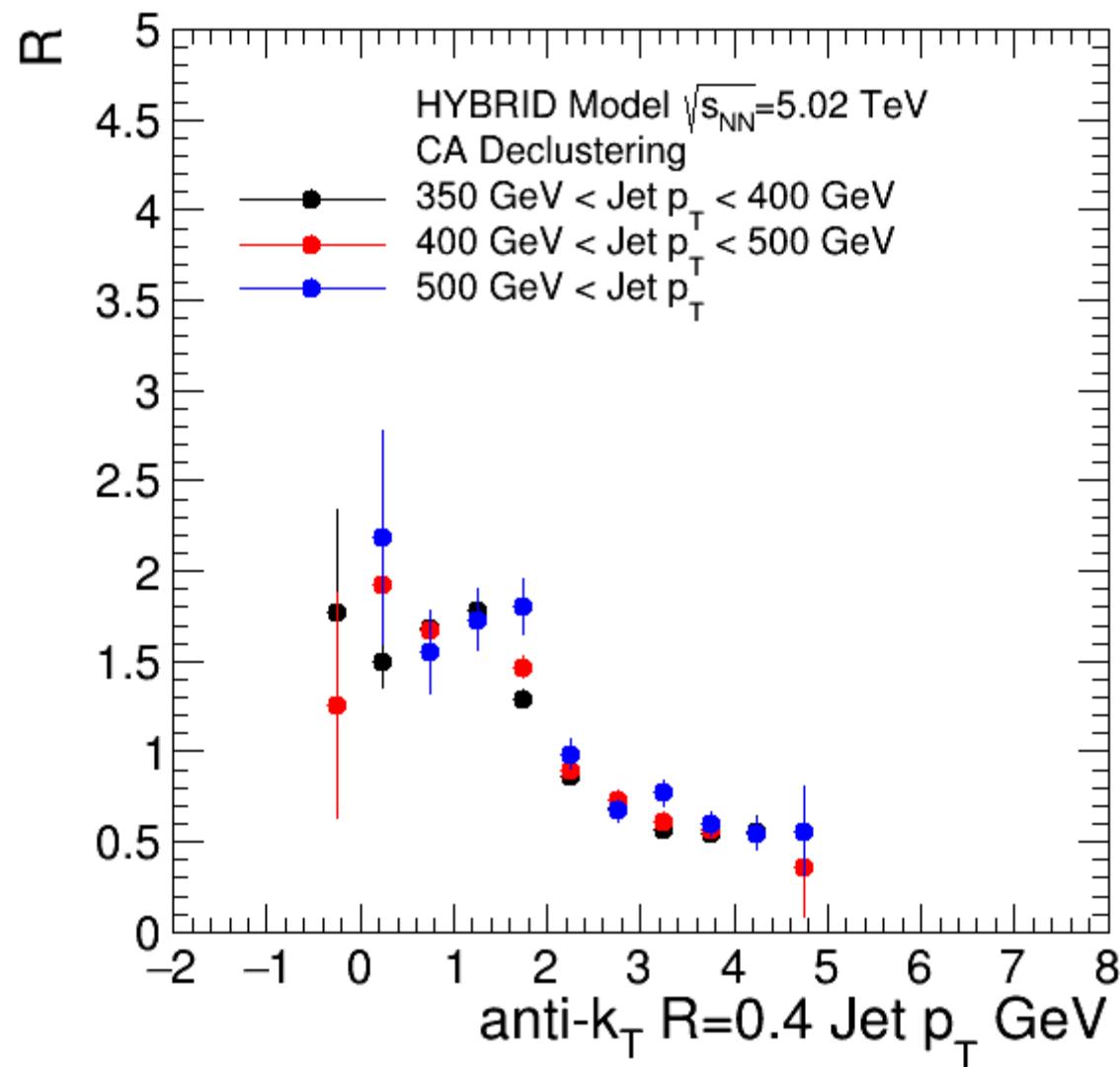


Arctic Puffin
JAMES GAYNARD PHOTOGRAPHY 2016

KT Tagged R_{K_T} from HYBRID (KT)

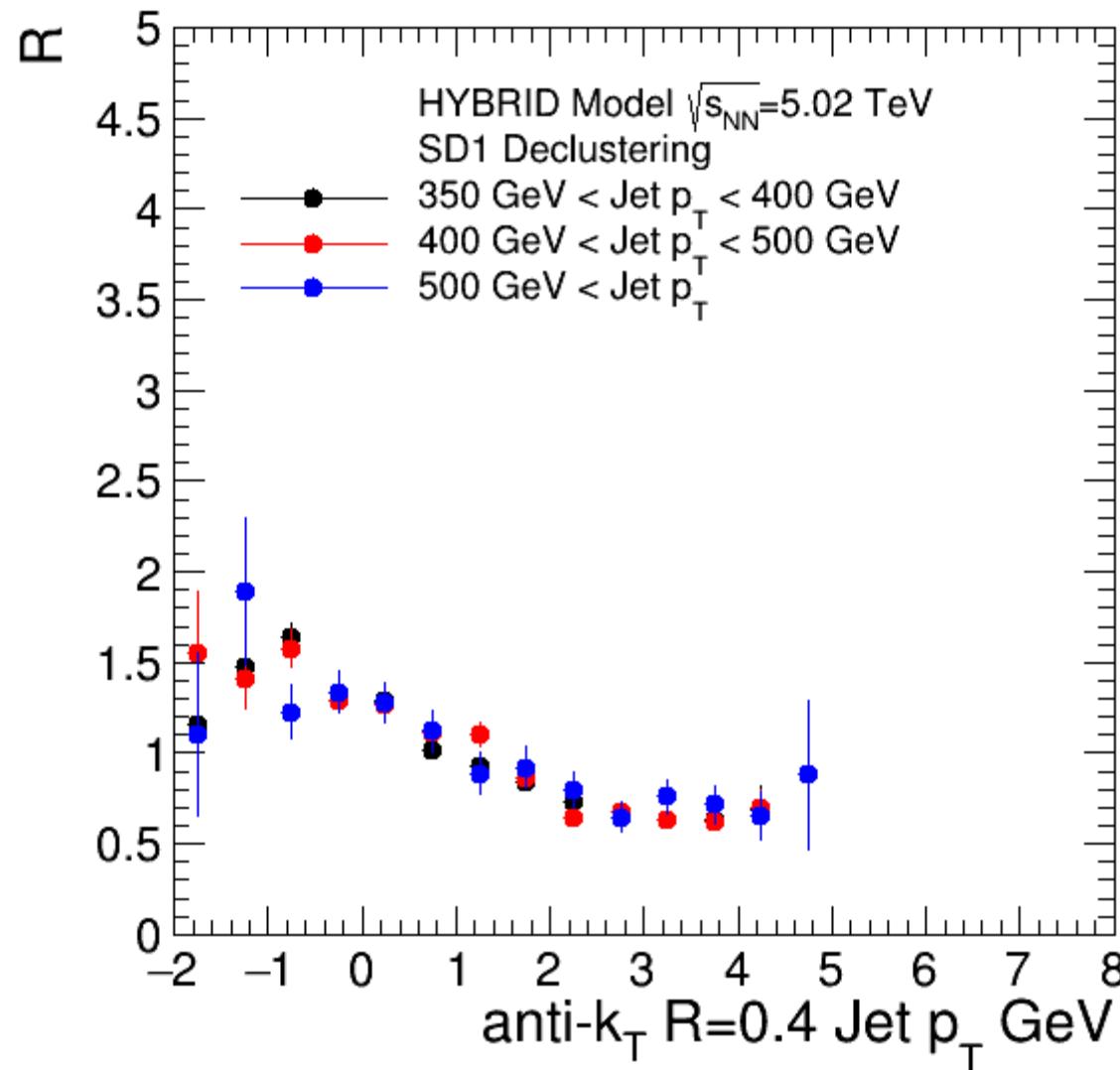


KT Tagged R_{K_T} from HYBRID (CA)

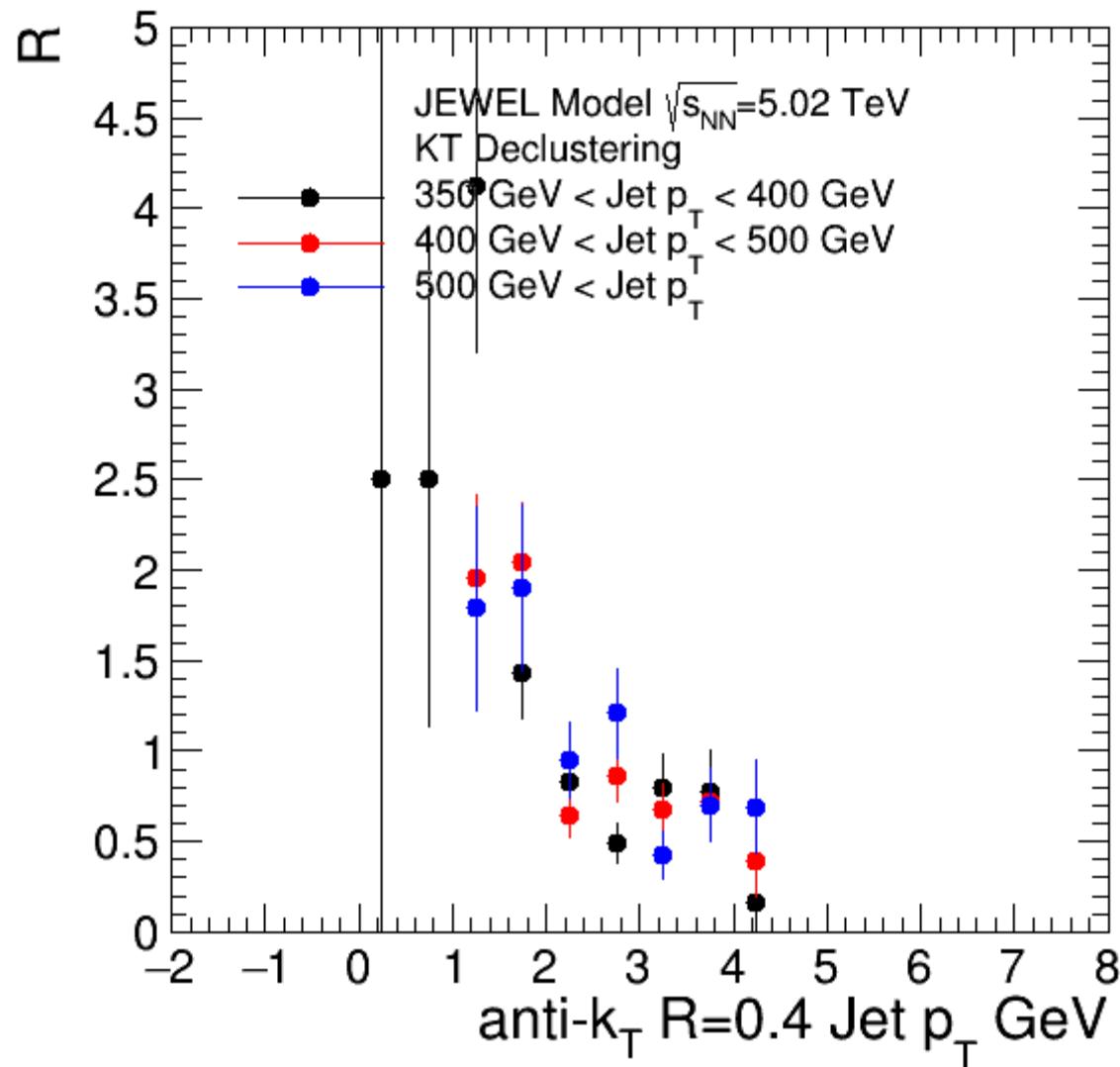


KT Tagged R_{K_T} from HYBRID (SD)

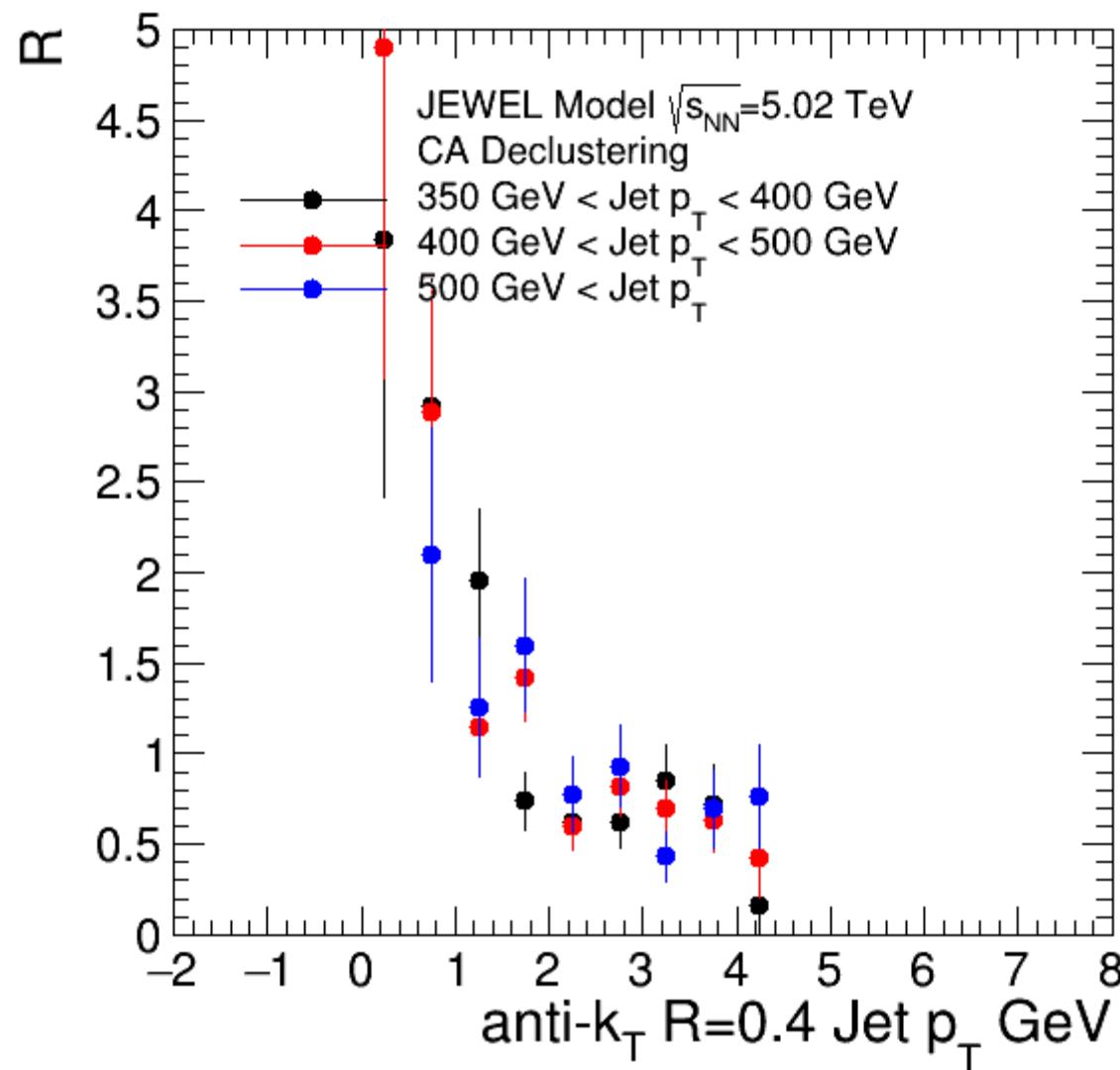
(Zcut, β)=(0.1,0.0)



KT Tagged R_{KT} from JEWEL (KT)

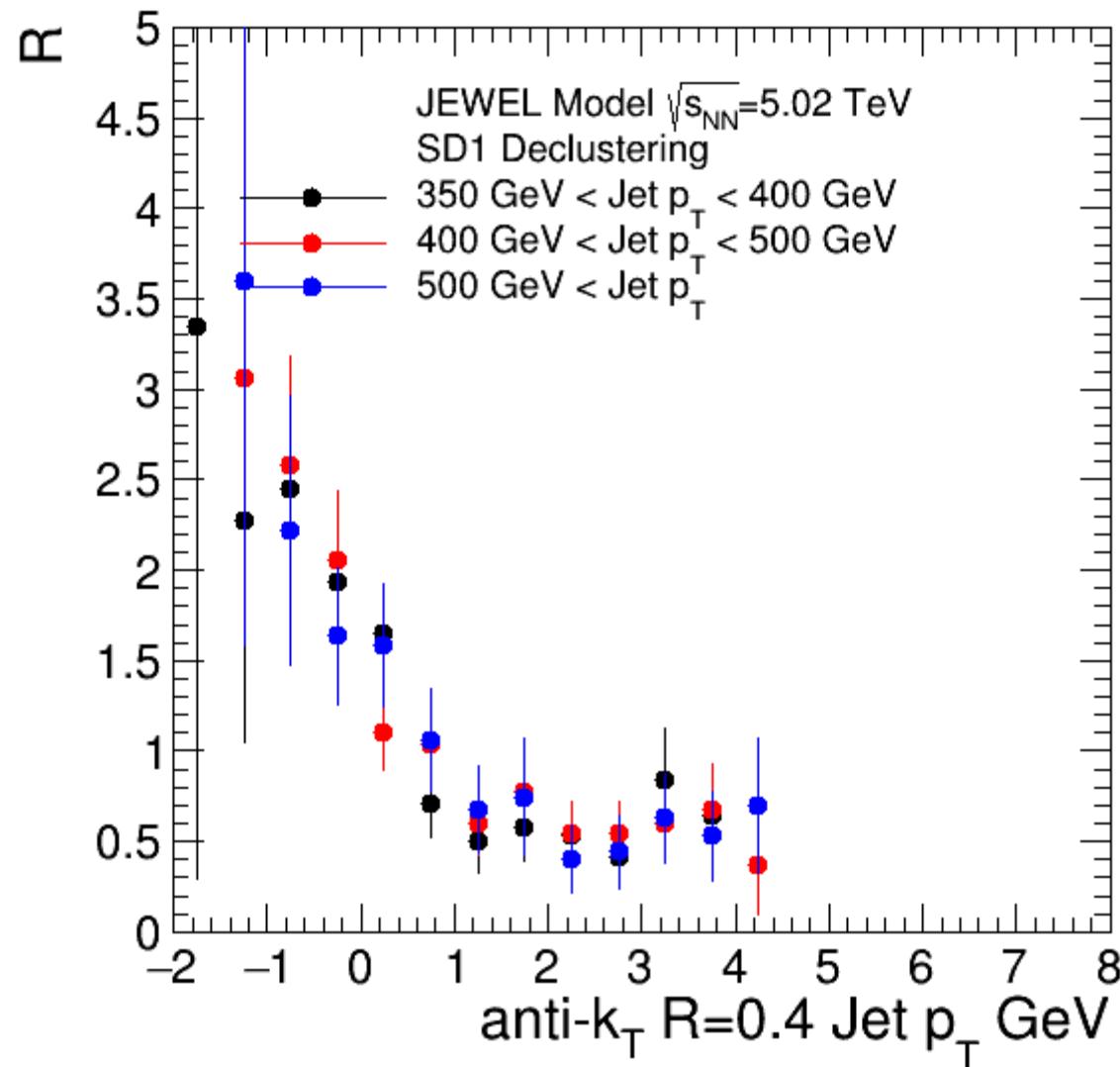


KT Tagged R_{KT} from JEWEL (CA)

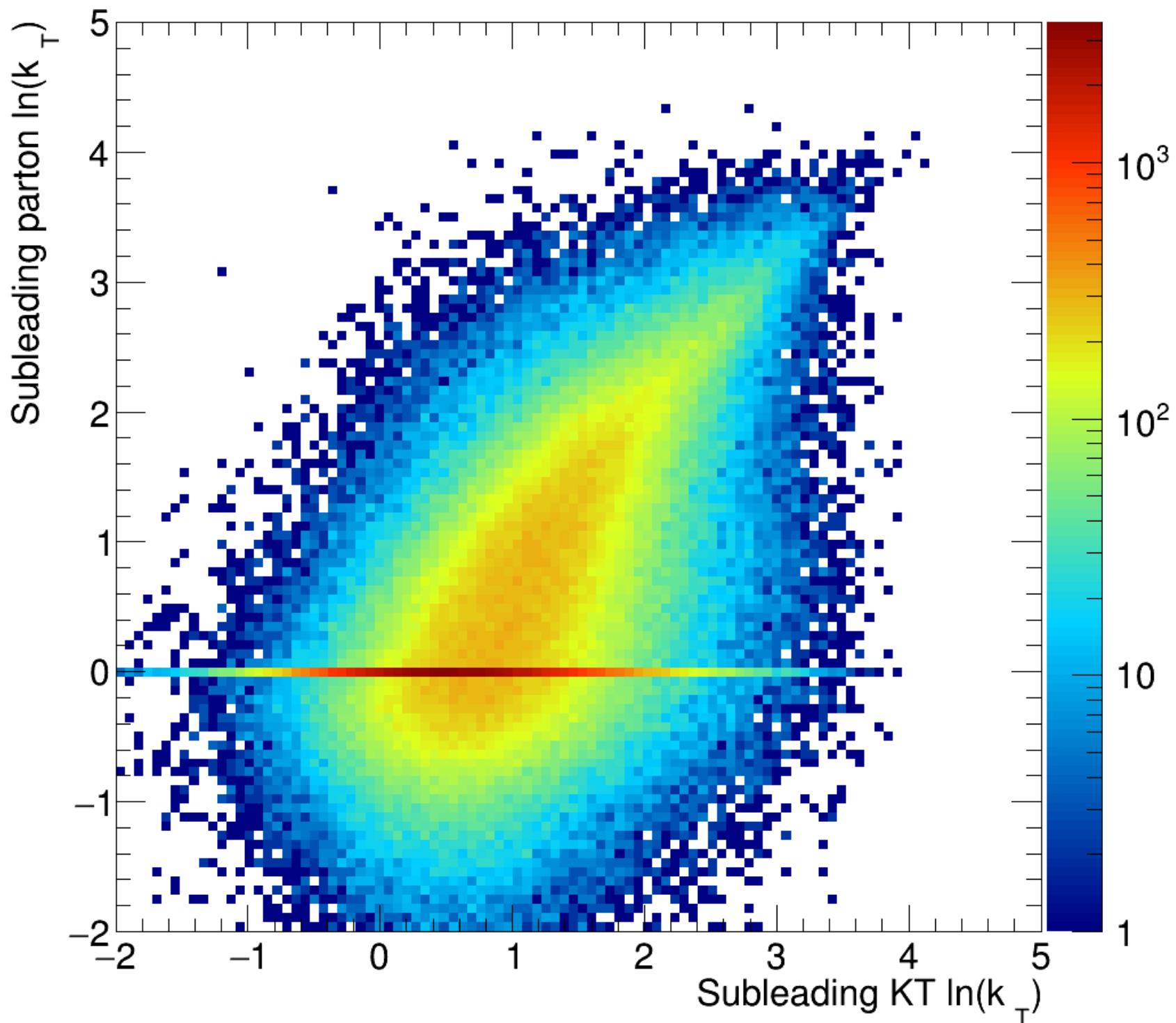


KT Tagged R_{KT} from JEWEL (SD)

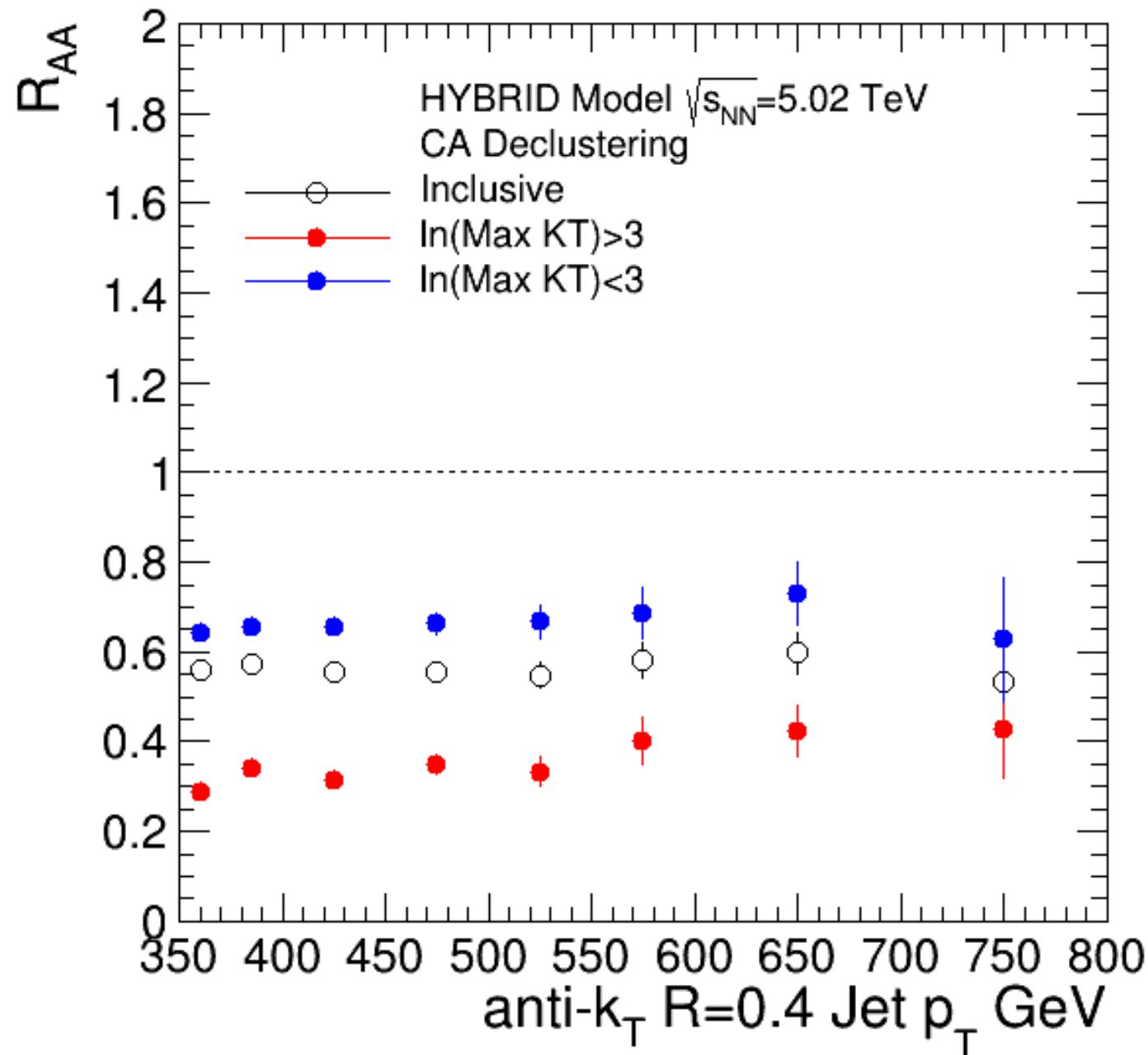
(Zcut, β)=(0.1,0.0)



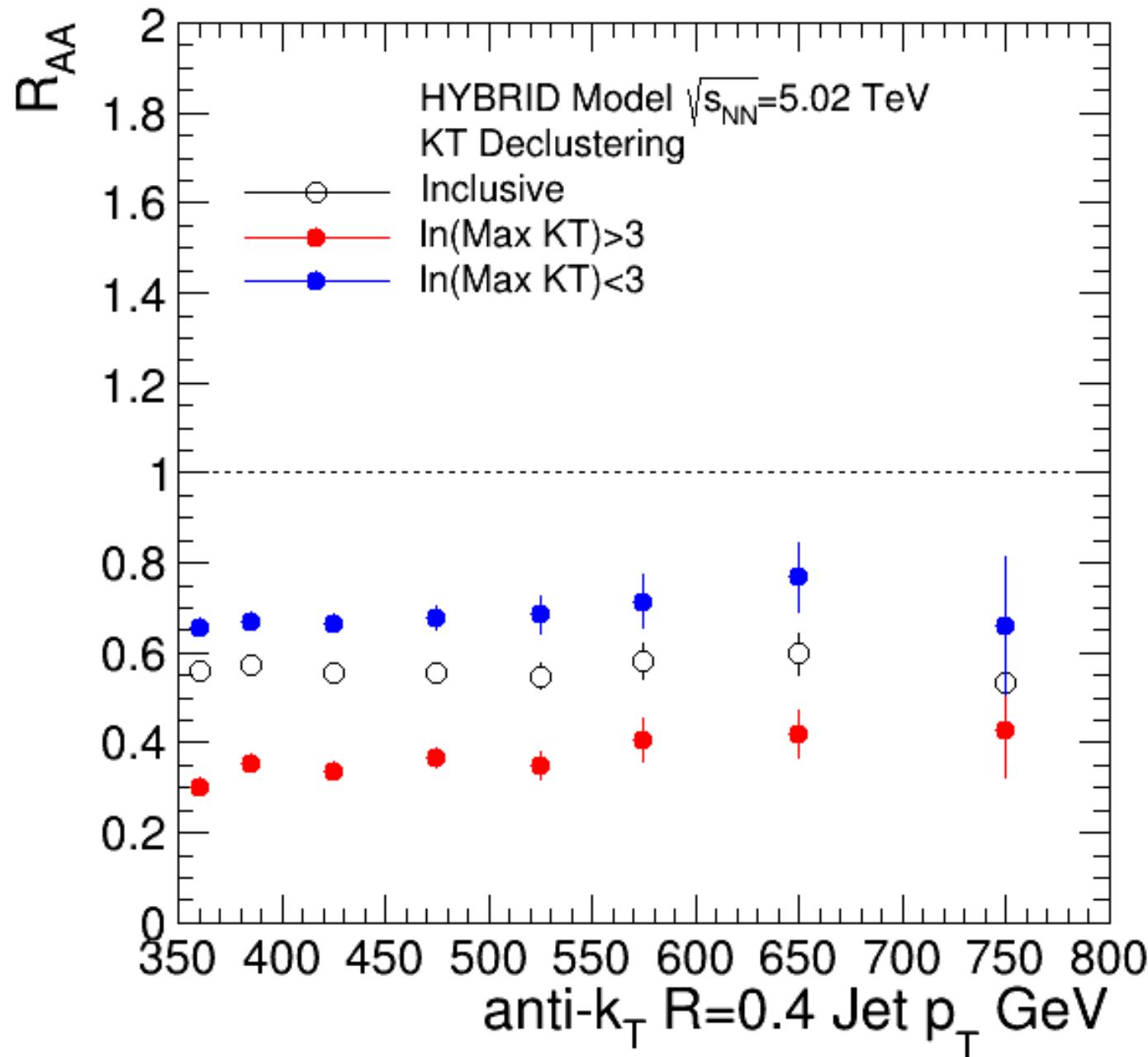
PYTHIA8 Pthat300 Jet pT>350 GeV



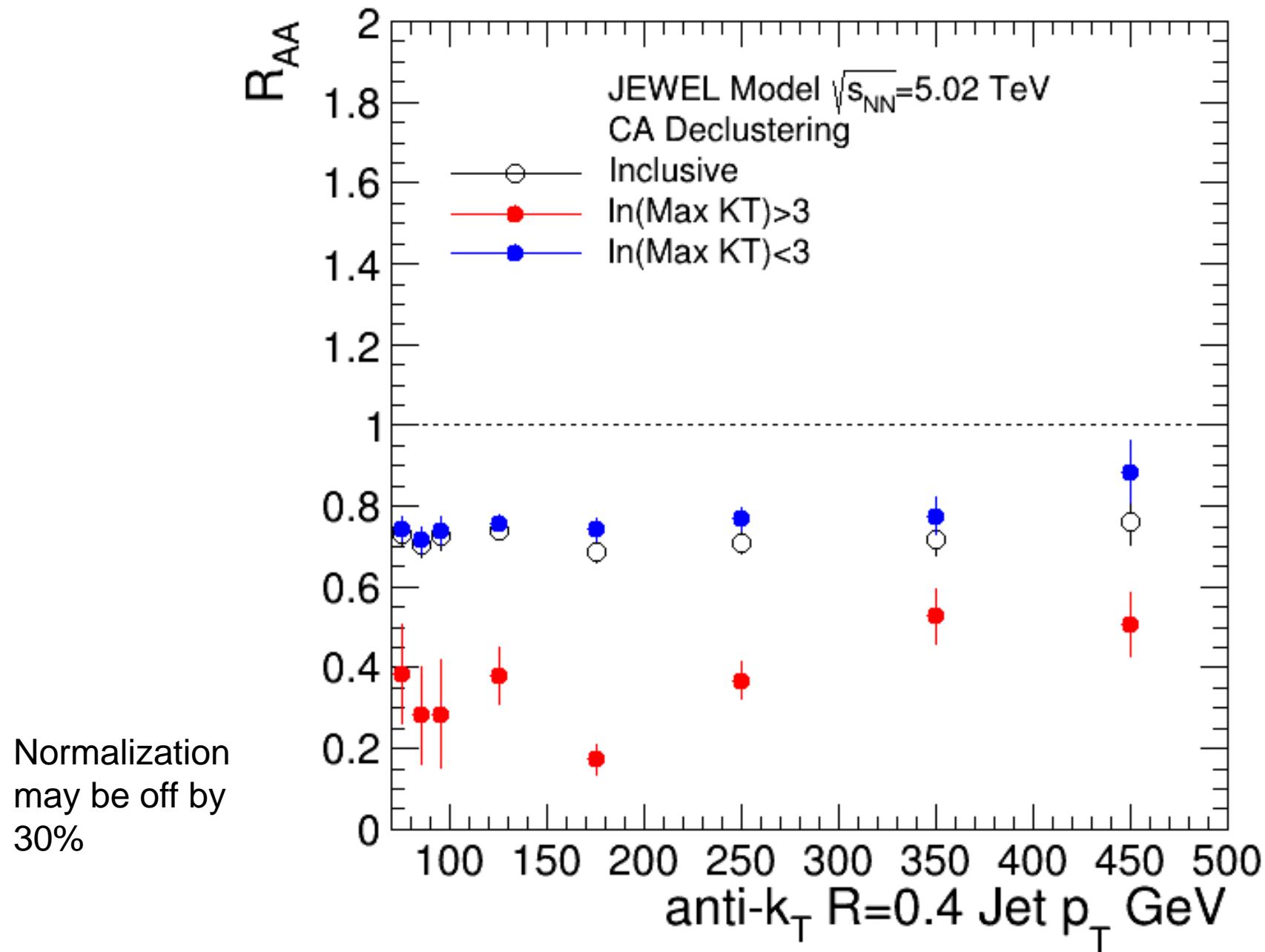
KT Tagged Jet R_{AA} from HYBRID (CA)



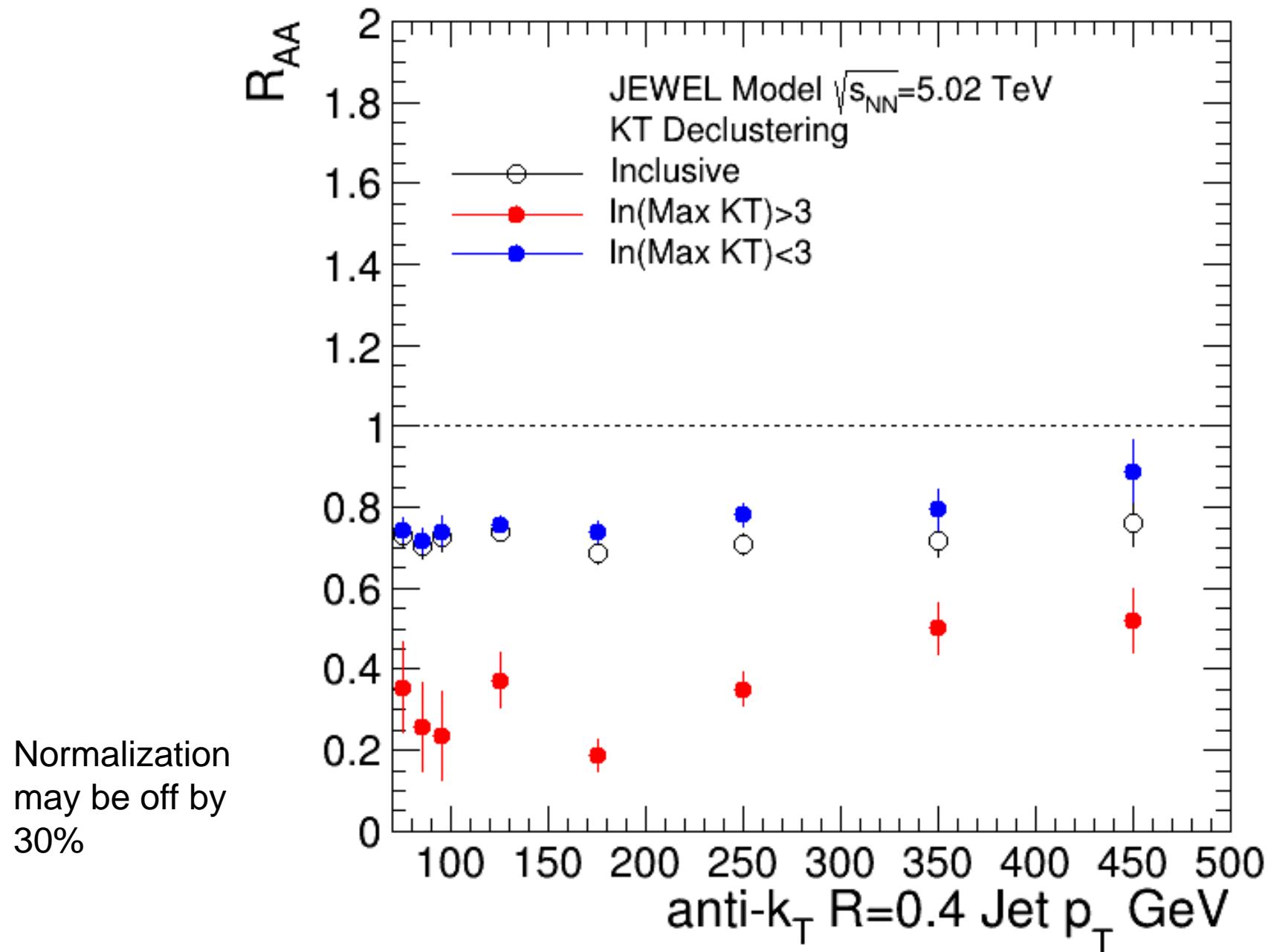
KT Tagged Jet R_{AA} from HYBRID (KT)



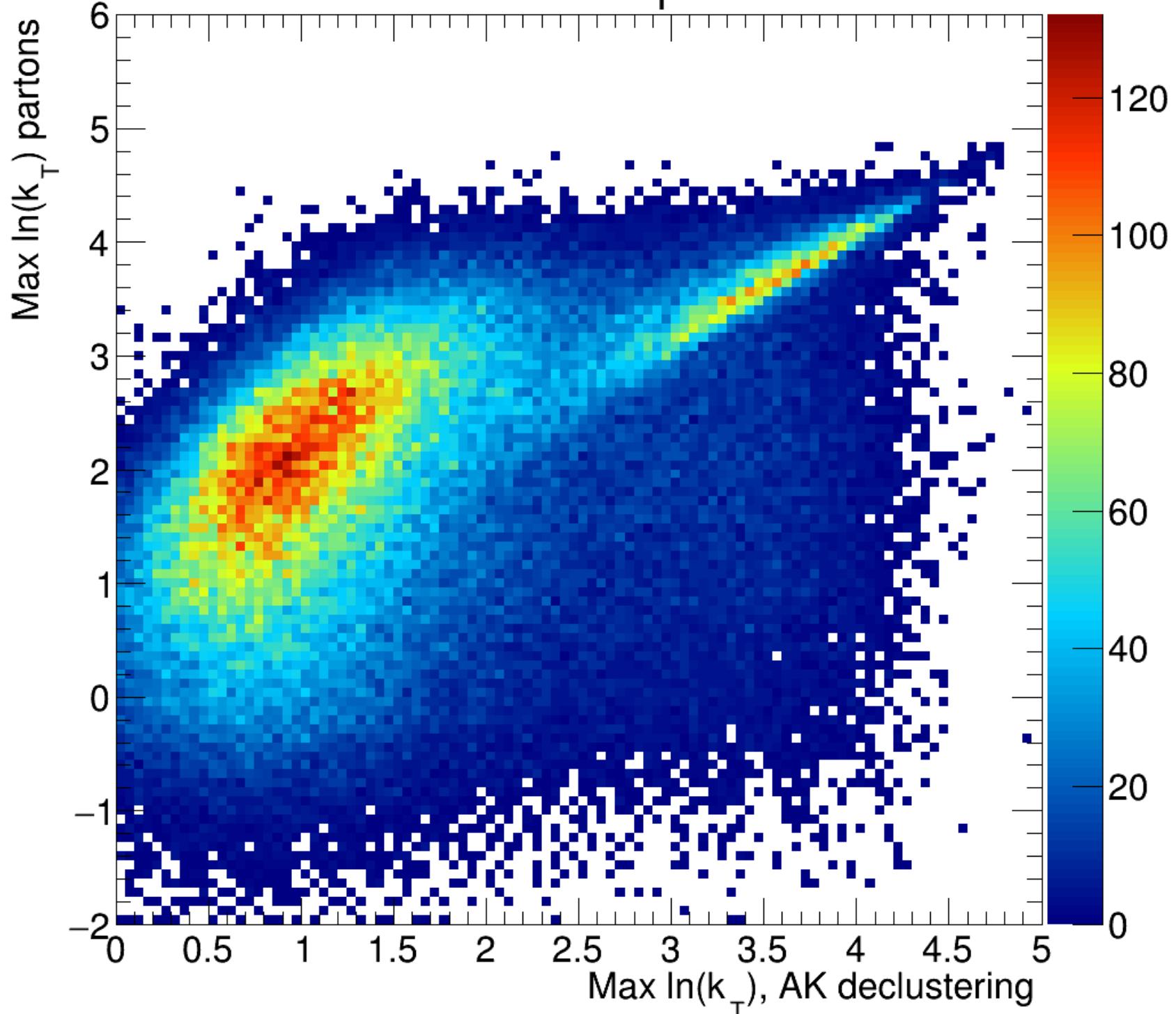
KT Tagged Jet R_{AA} from JEWEL No-Recoil (CA)



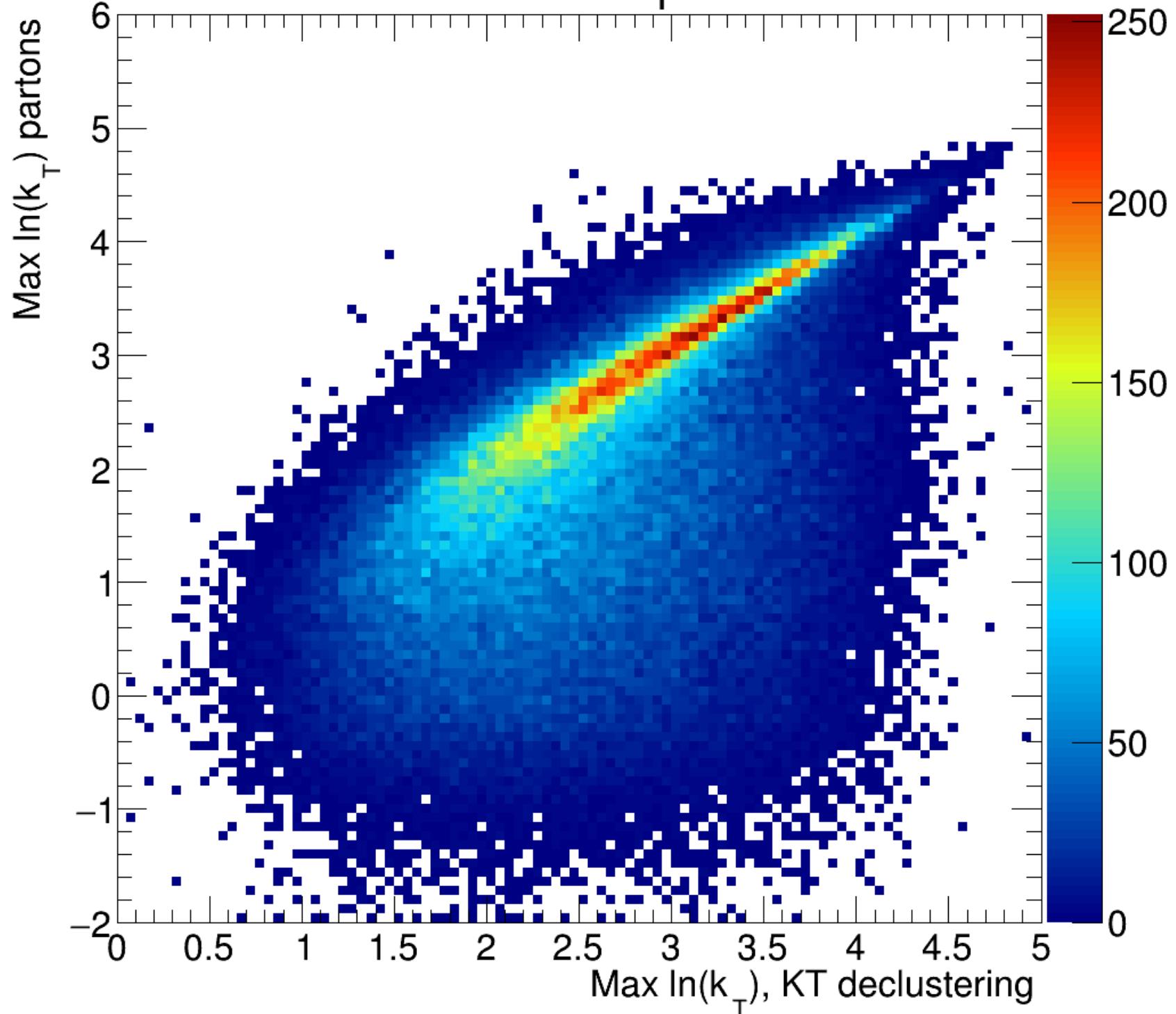
KT Tagged Jet R_{AA} from JEWEL No-Recoil (KT)



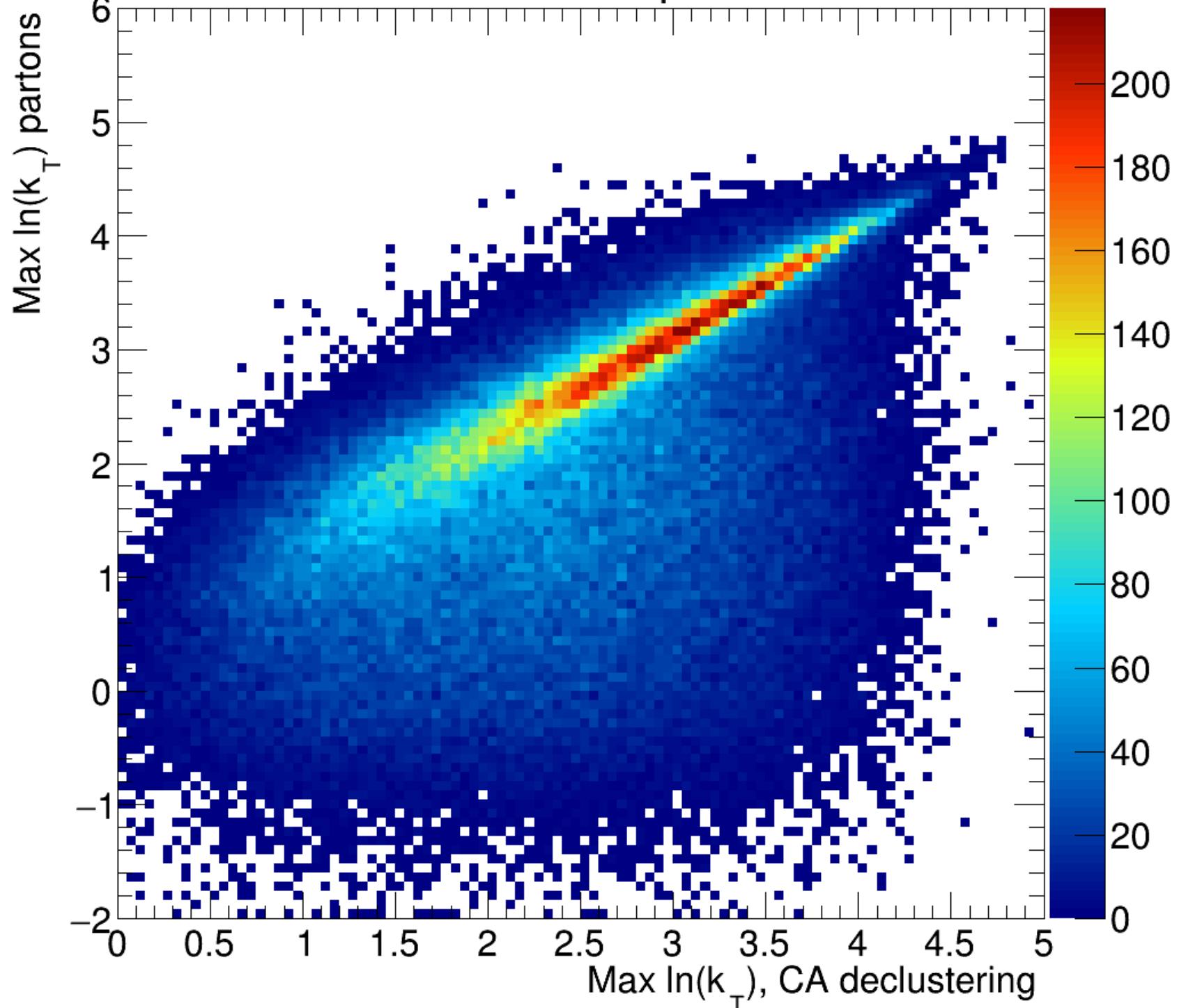
Pythia8 UEOn $p_T^{\text{jet}} > 350 \text{ GeV}$



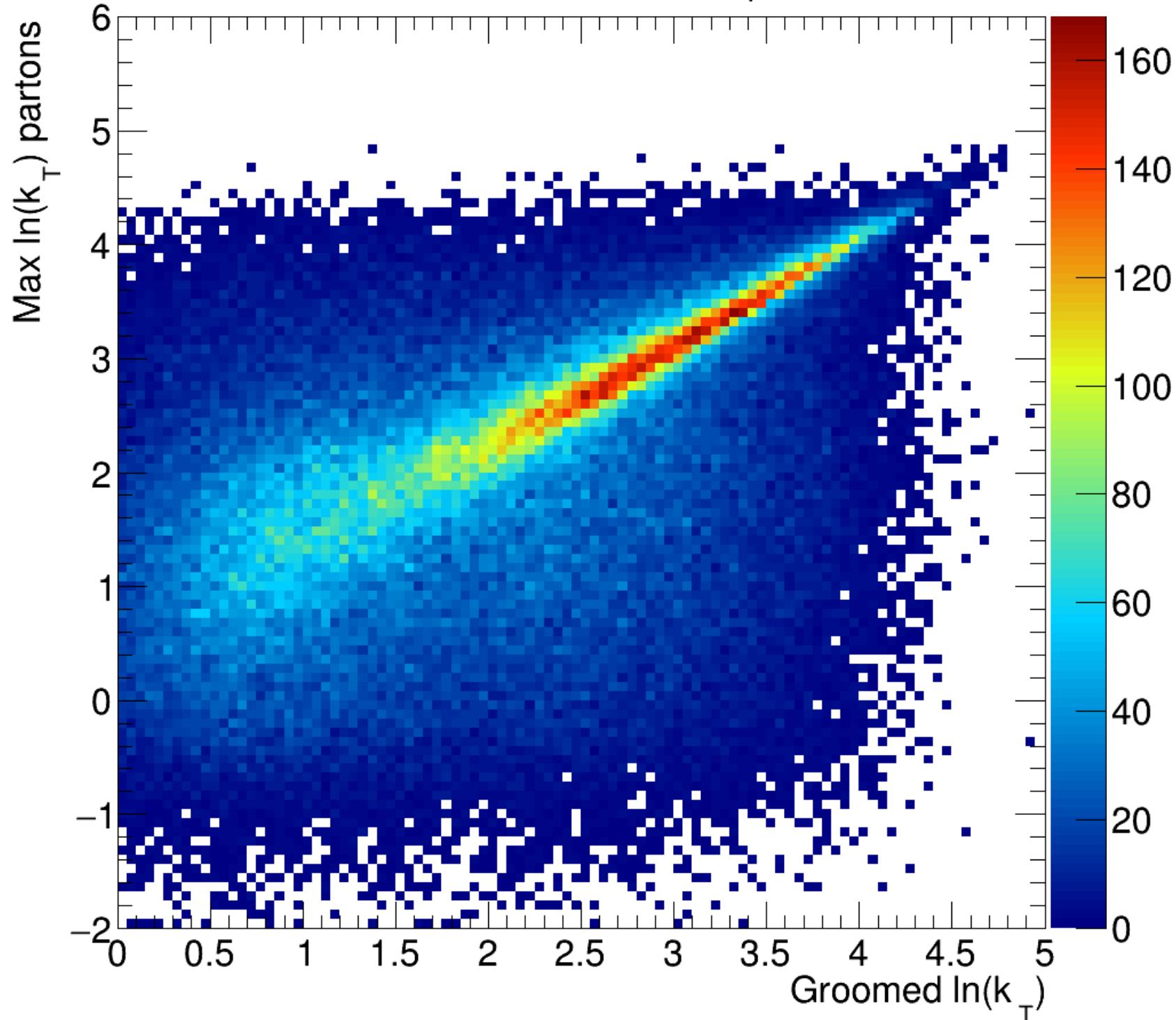
Pythia8 UEOn $p_T^{\text{jet}} > 350 \text{ GeV}$



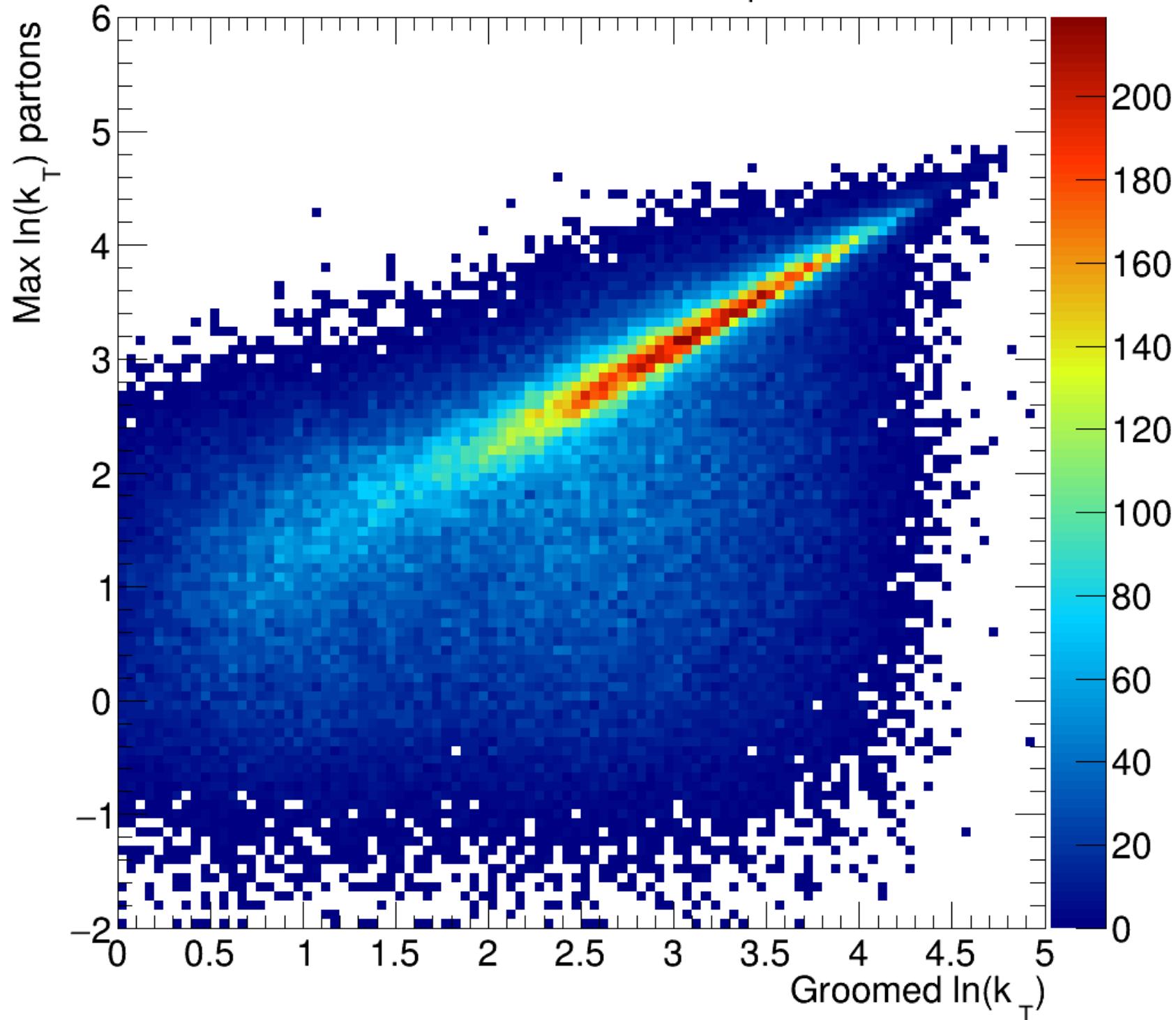
Pythia8 UEOn $p_T^{\text{jet}} > 350 \text{ GeV}$



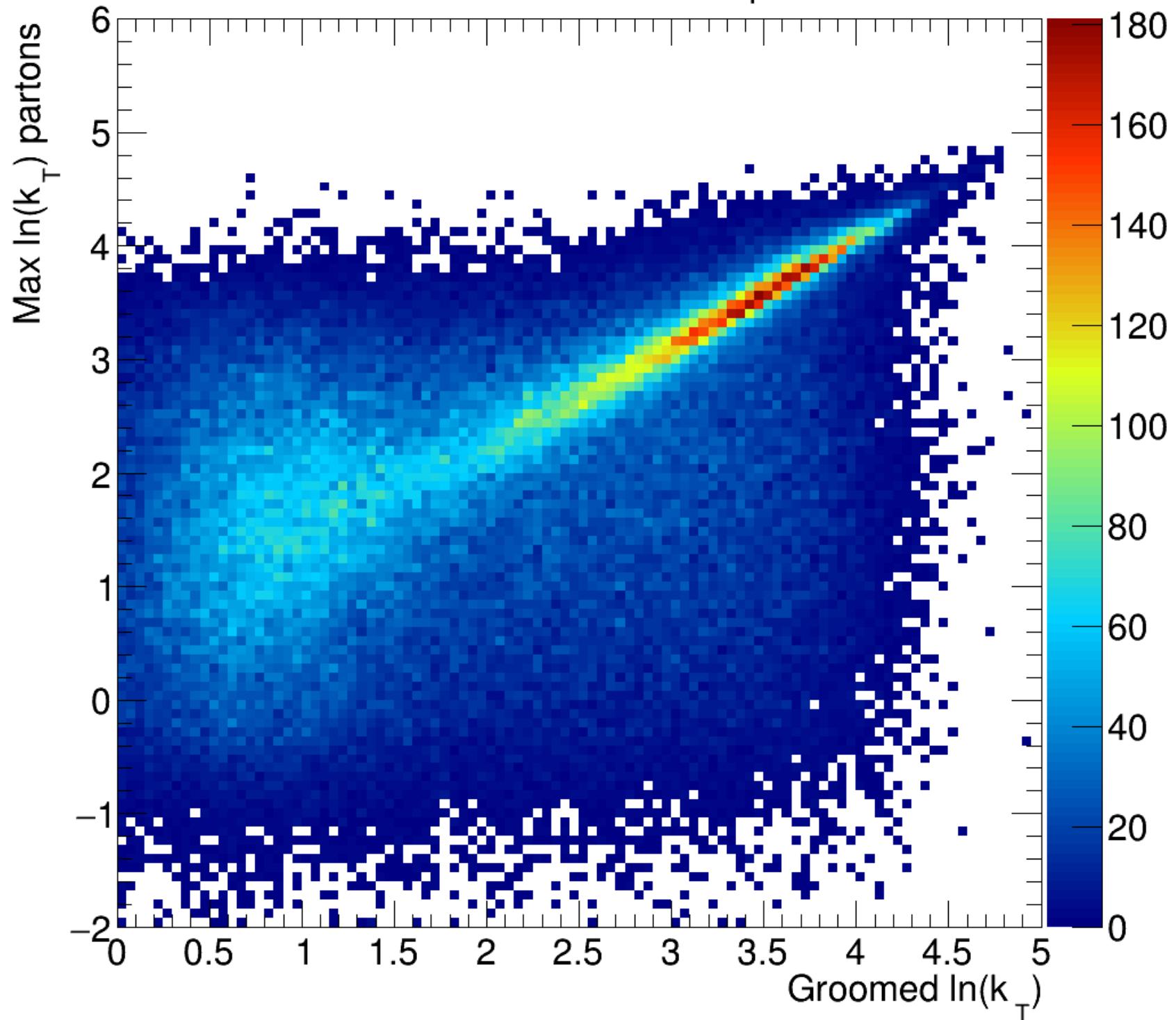
Pythia8 UEOn (0.5, 1.5) $p_T^{\text{jet}} > 350 \text{ GeV}$



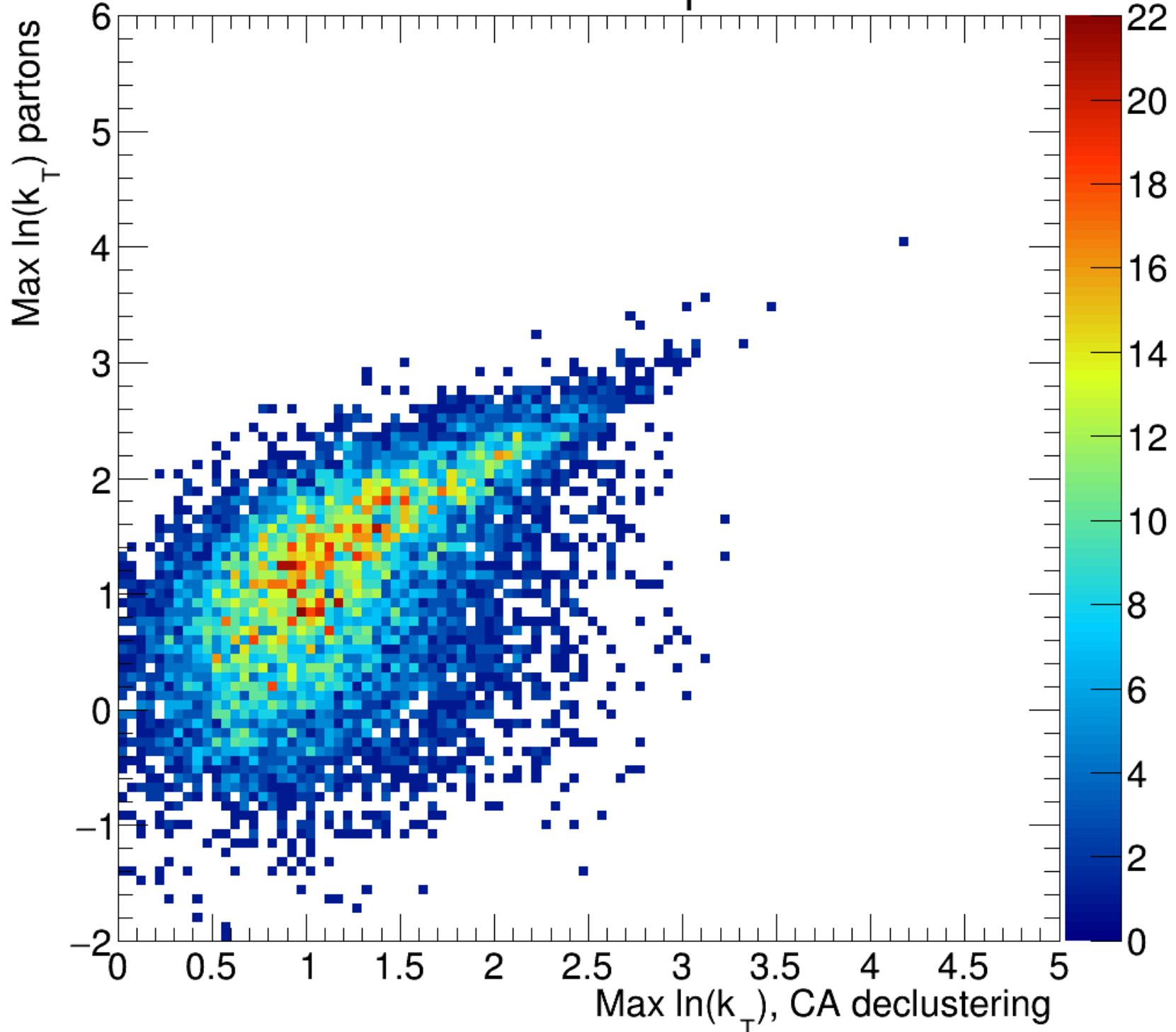
Pythia8 UEOn (0.1, 0.0) $p_T^{\text{jet}} > 350 \text{ GeV}$



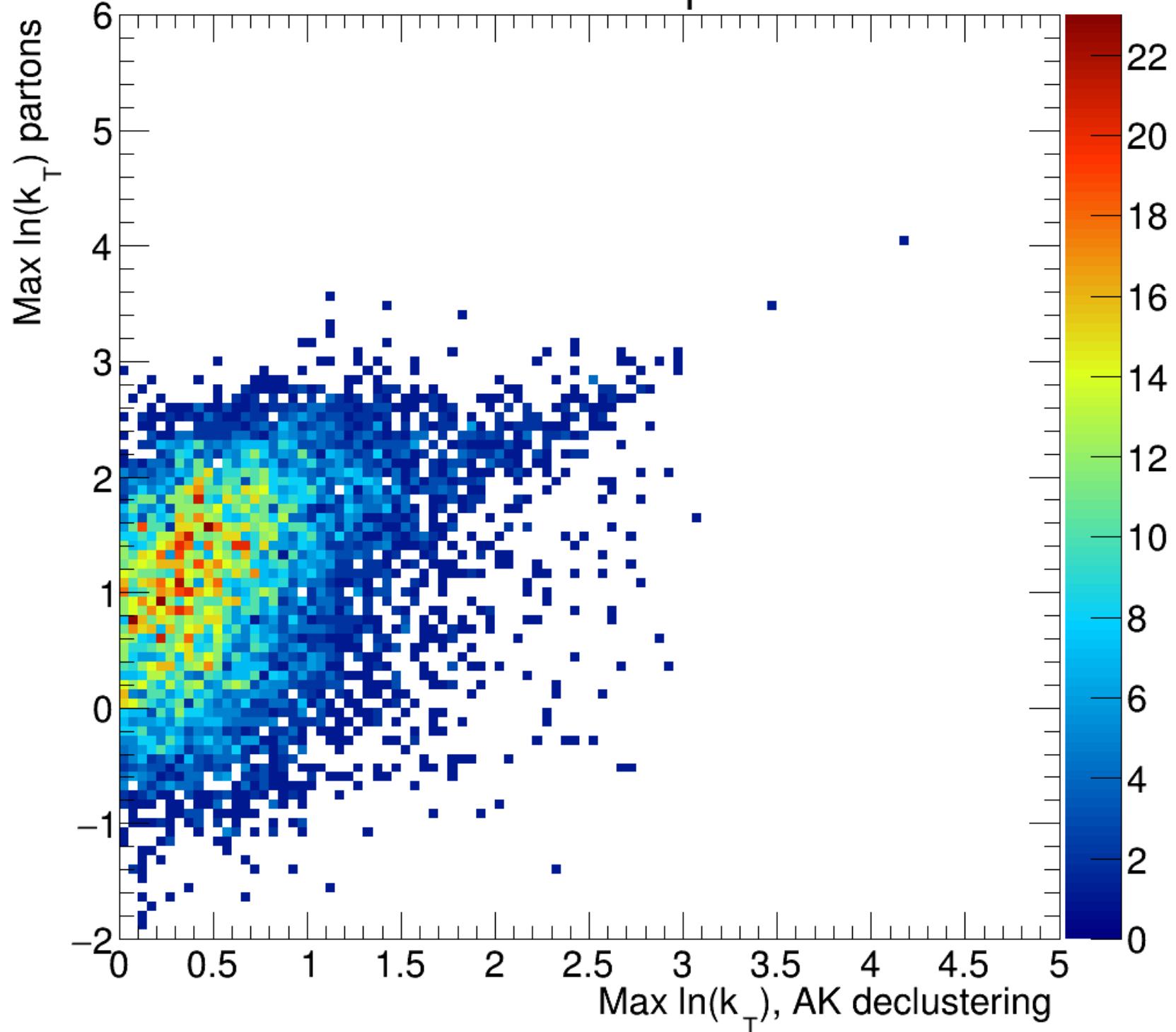
Pythia8 UEOn (0.25, 0.0) $p_T^{\text{jet}} > 350 \text{ GeV}$



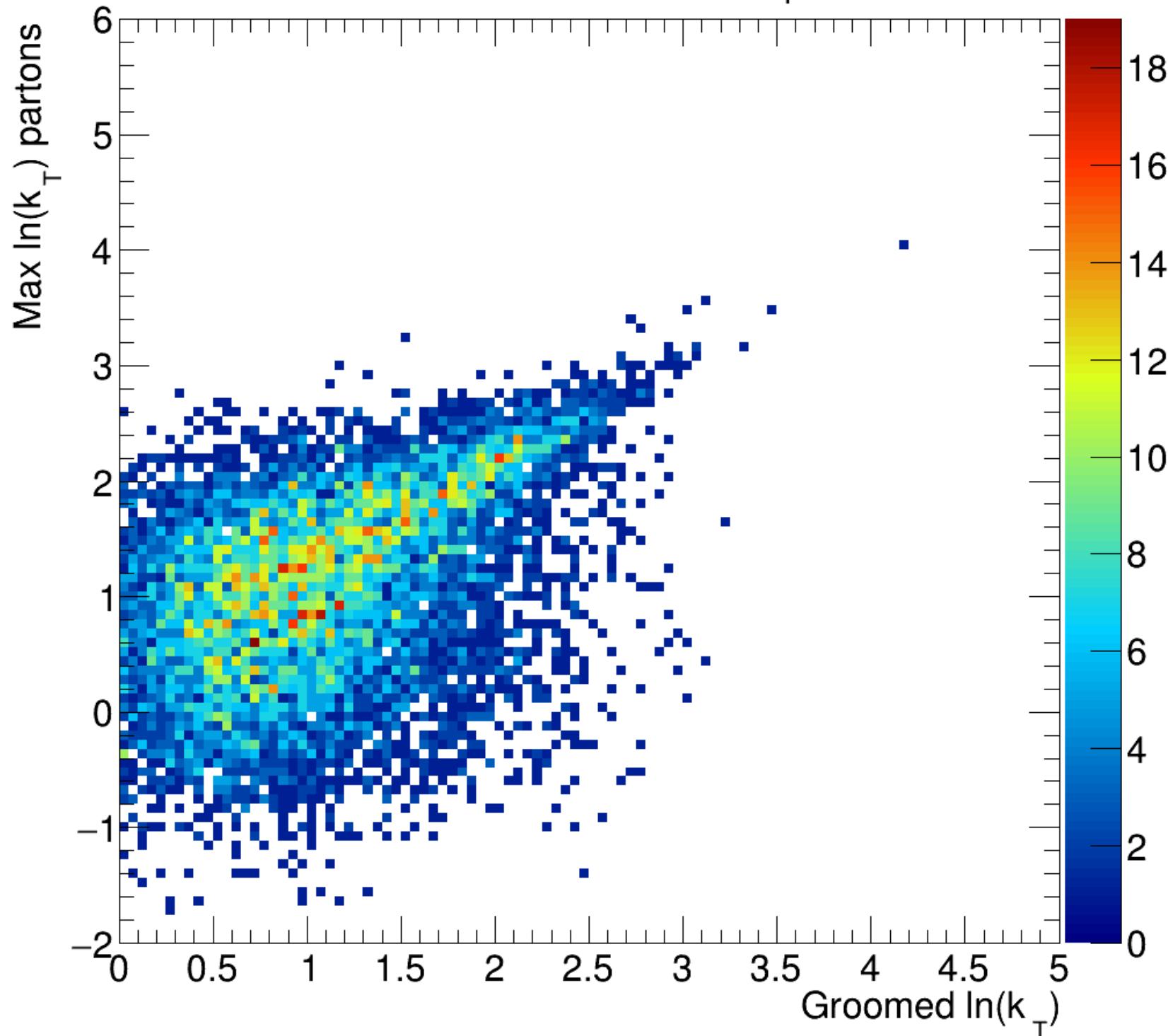
Pythia8 UEOn $p_T^{\text{jet}} > 60 \text{ GeV}$



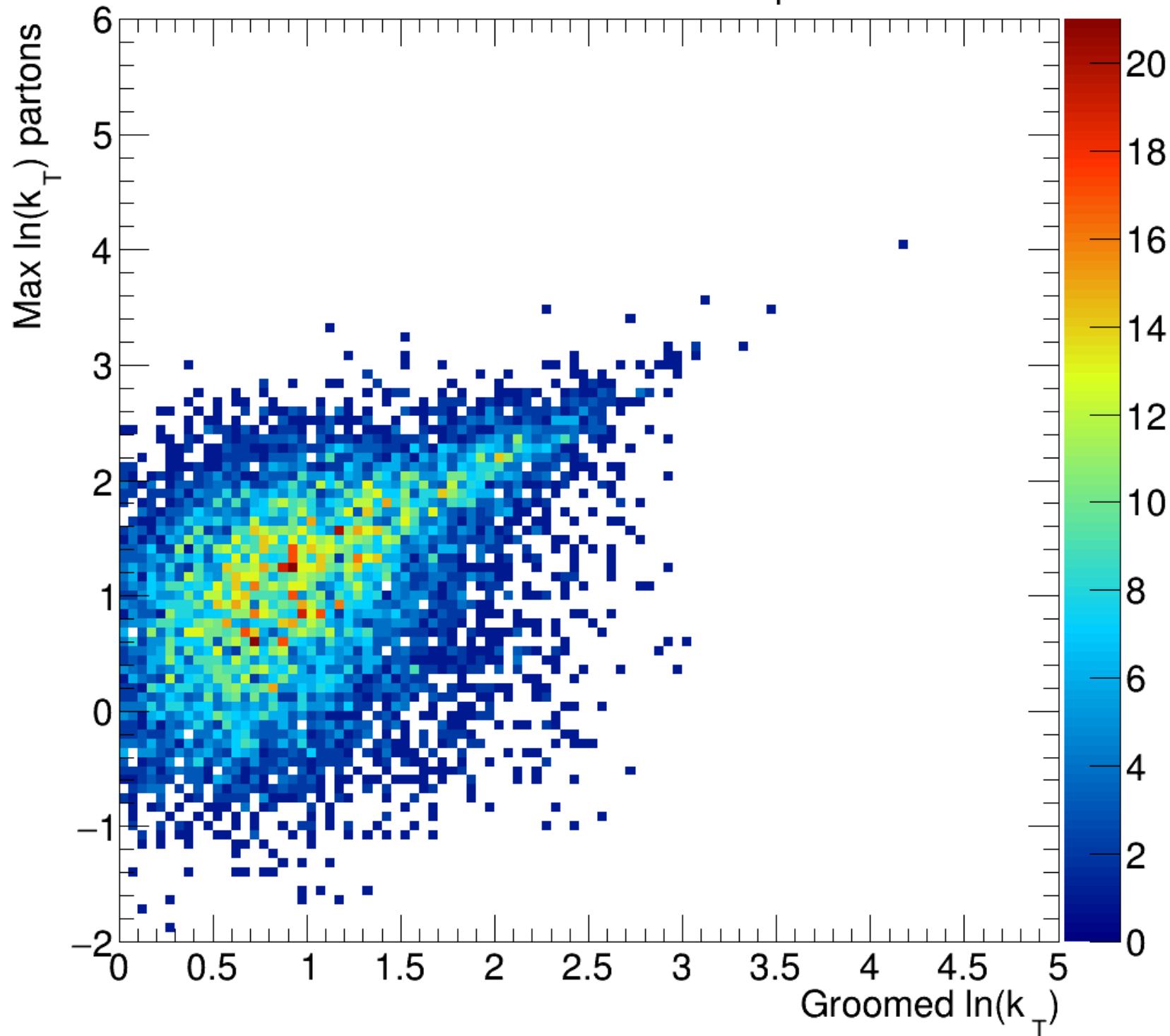
Pythia8 UEOn $p_T^{\text{jet}} > 60 \text{ GeV}$



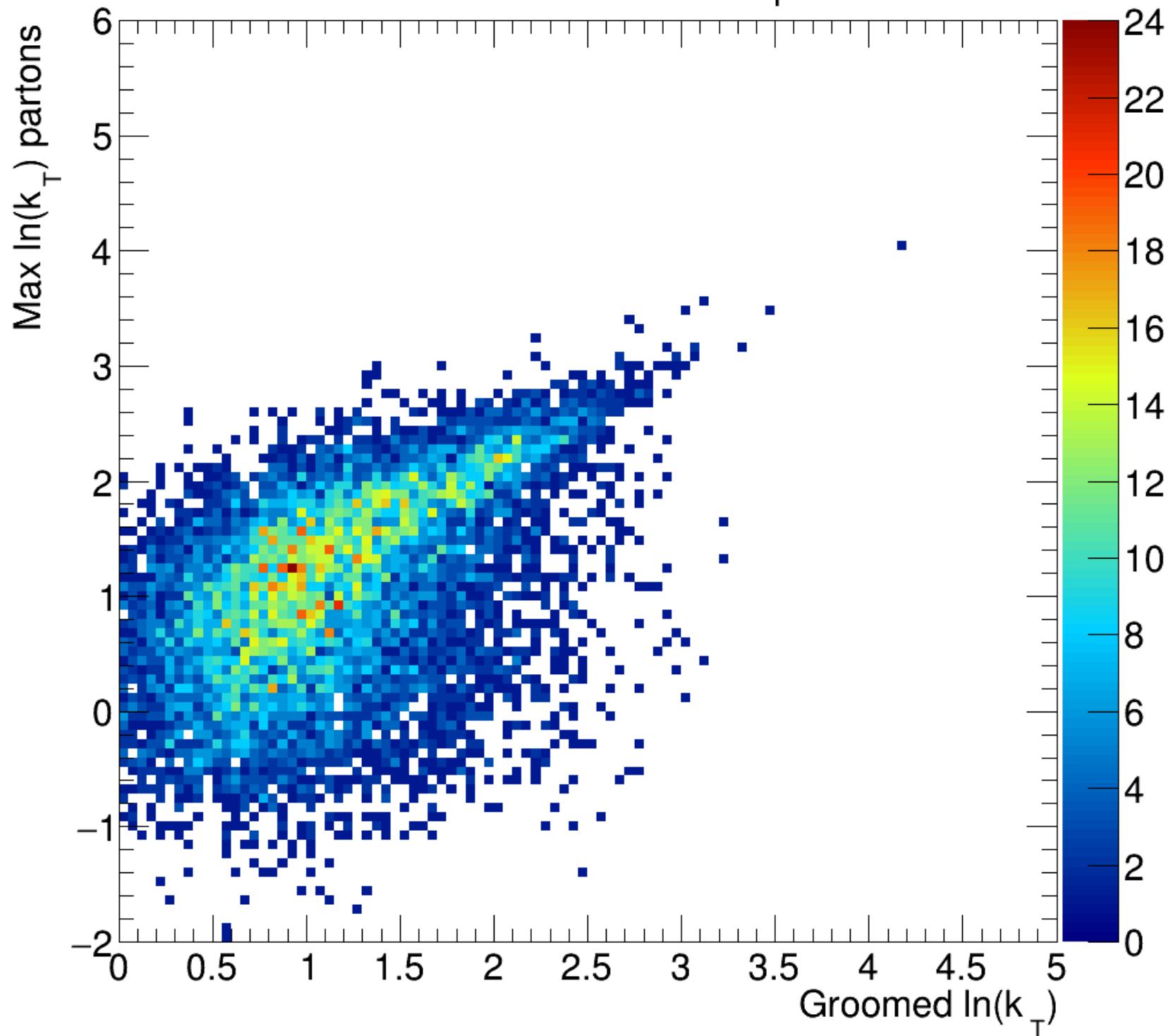
Pythia8 UEOn (0.25, 0.0) $p_T^{\text{jet}} > 60 \text{ GeV}$



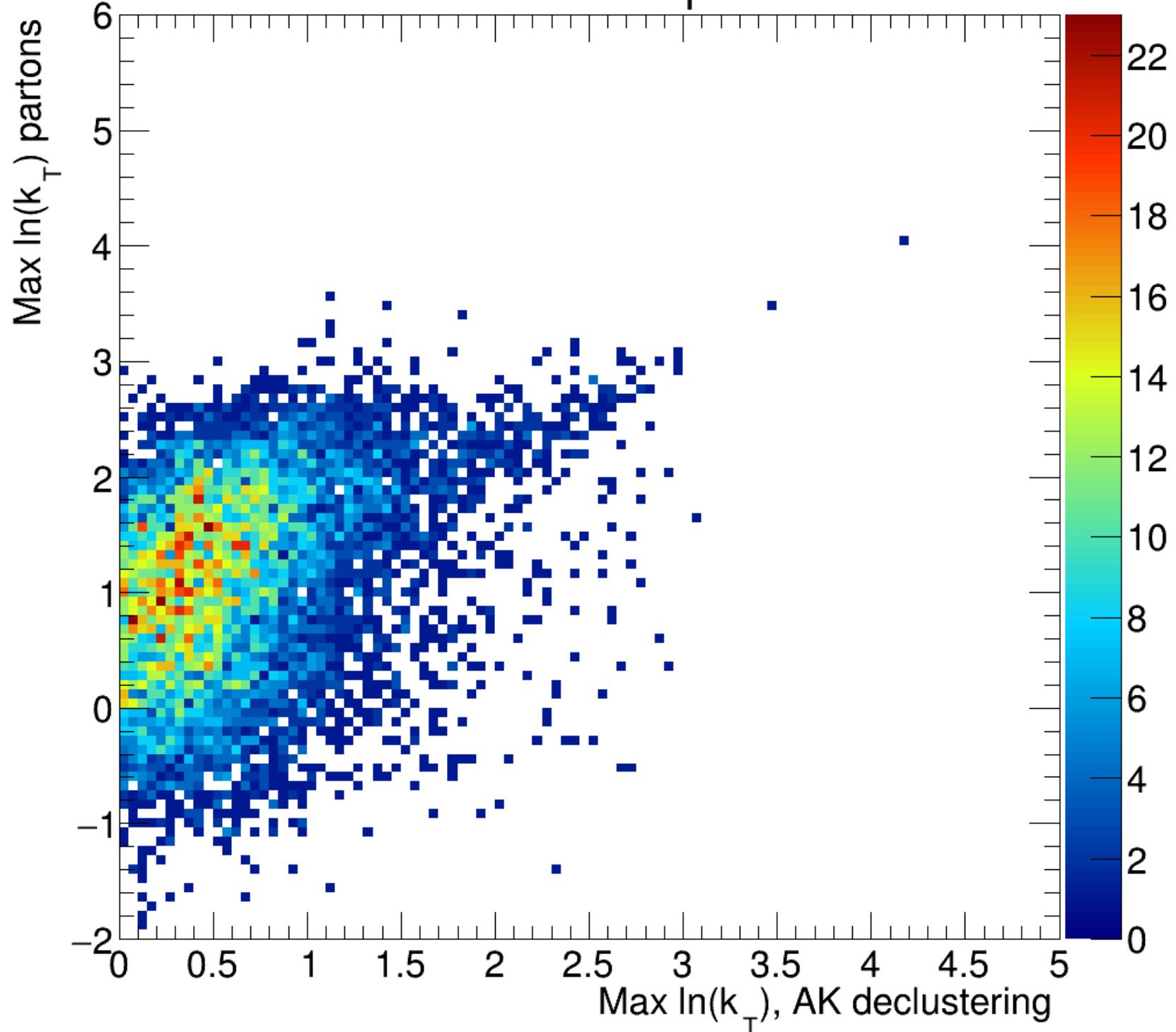
Pythia8 UEOn (0.5, 1.5) $p_T^{\text{jet}} > 60 \text{ GeV}$



Pythia8 UEOn (0.1, 0.0) $p_T^{\text{jet}} > 60 \text{ GeV}$



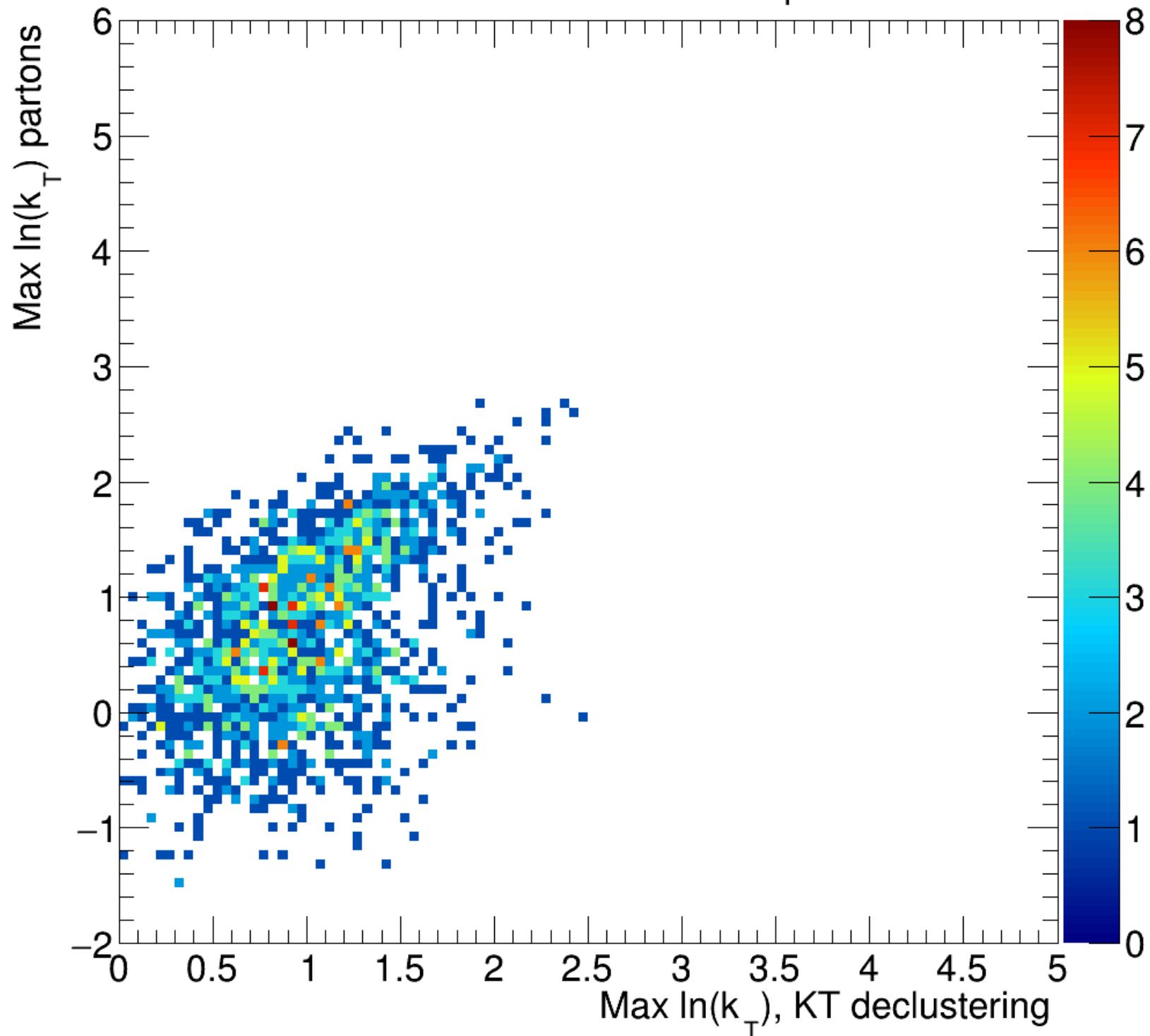
Pythia8 UEOn $p_T^{\text{jet}} > 60 \text{ GeV}$



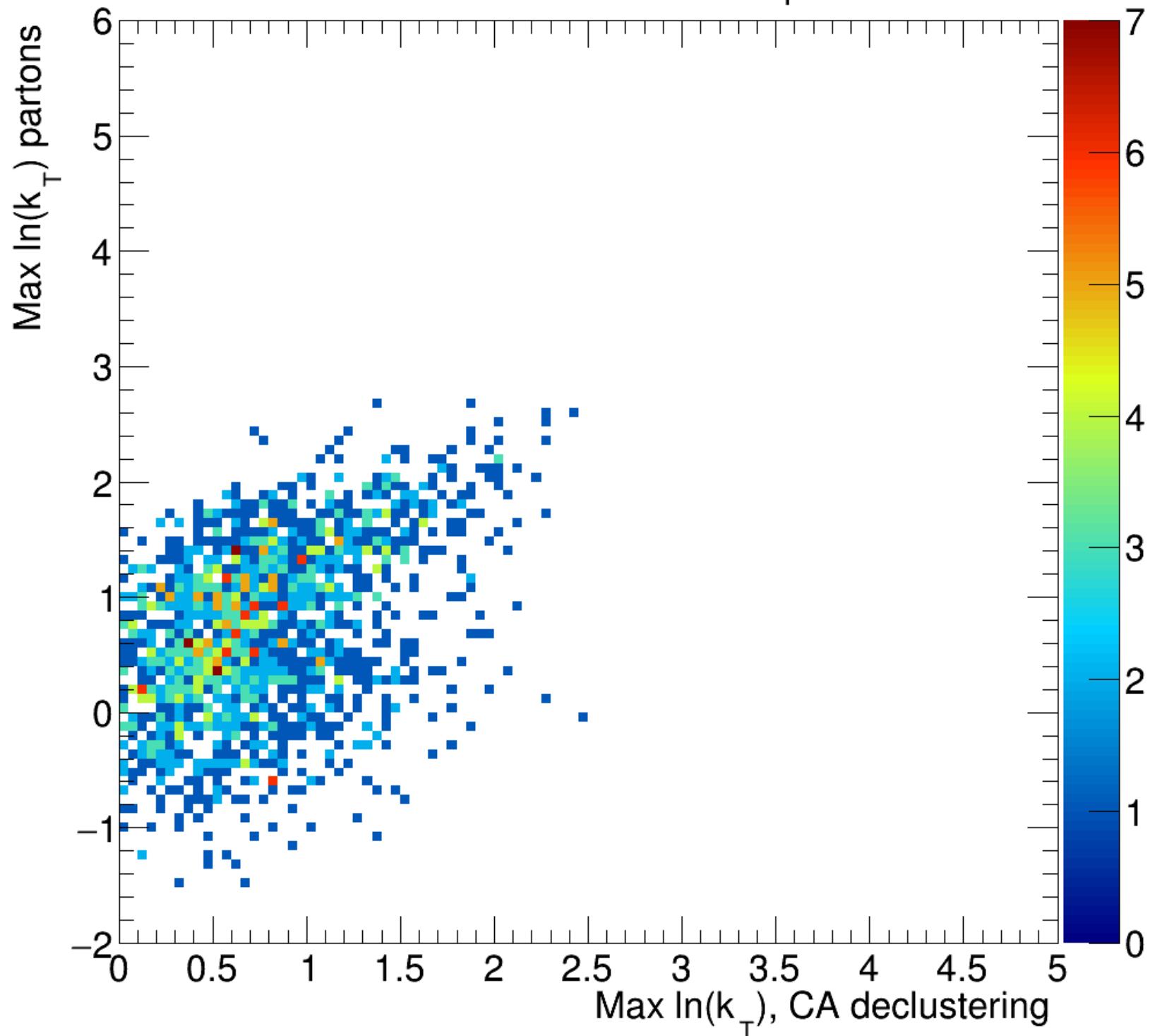
Investigation of R dependence

R=0.2

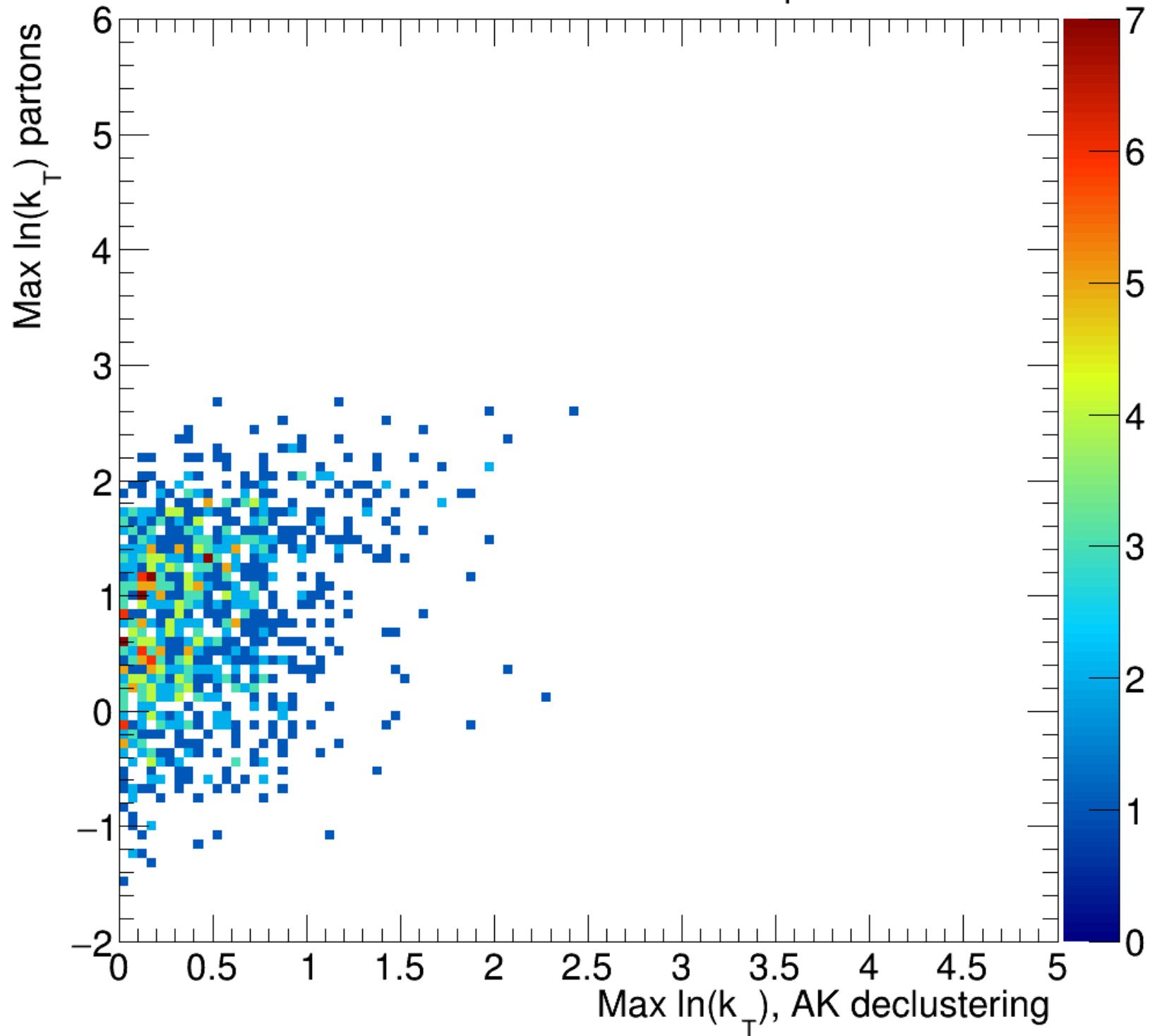
$R = 0.2$, Pythia8 PTHat 50 $p_T^{\text{jet}} > 70 \text{ GeV}$



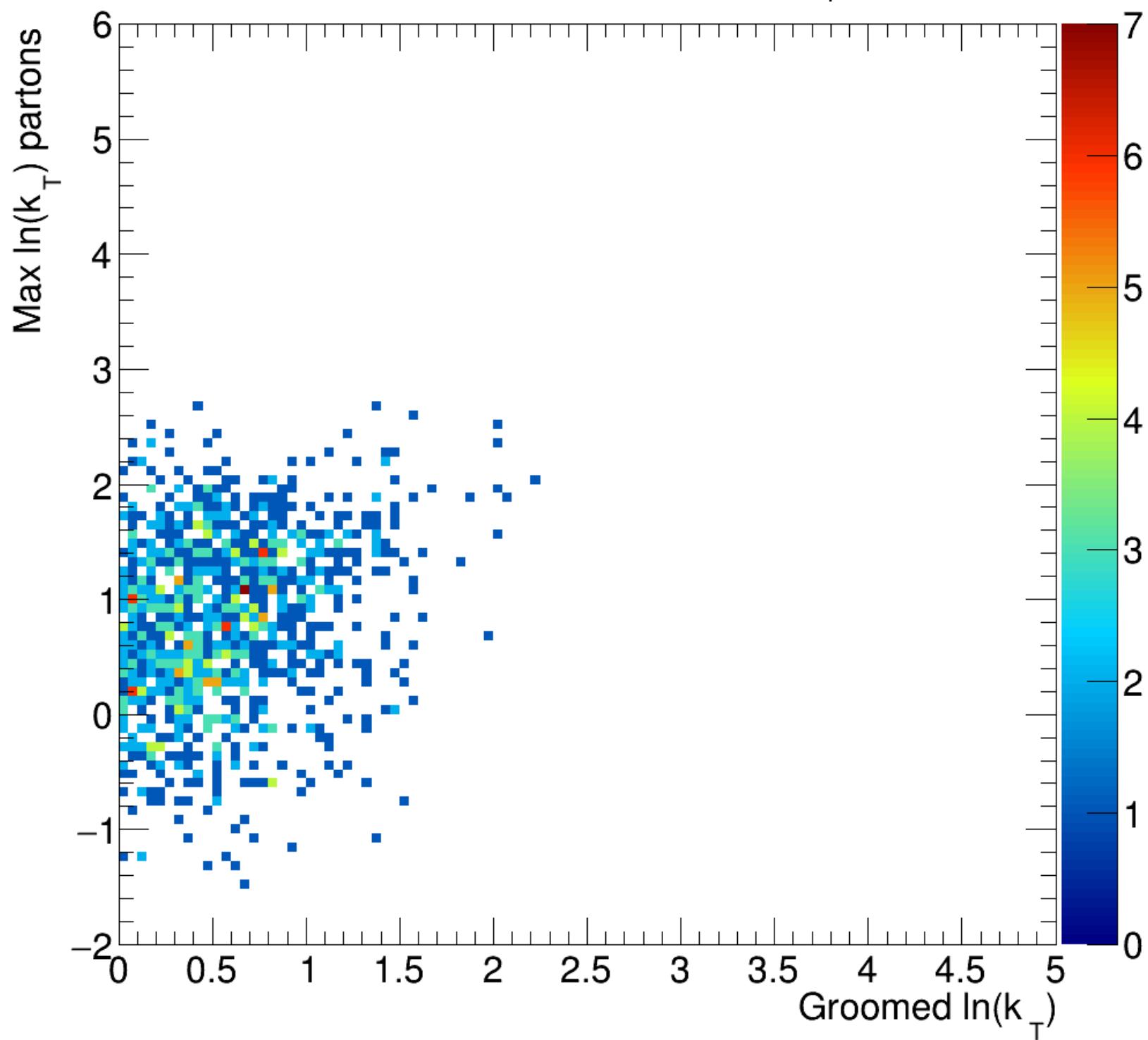
$R = 0.2$, Pythia8 PTHat 50 $p_T^{\text{jet}} > 70 \text{ GeV}$



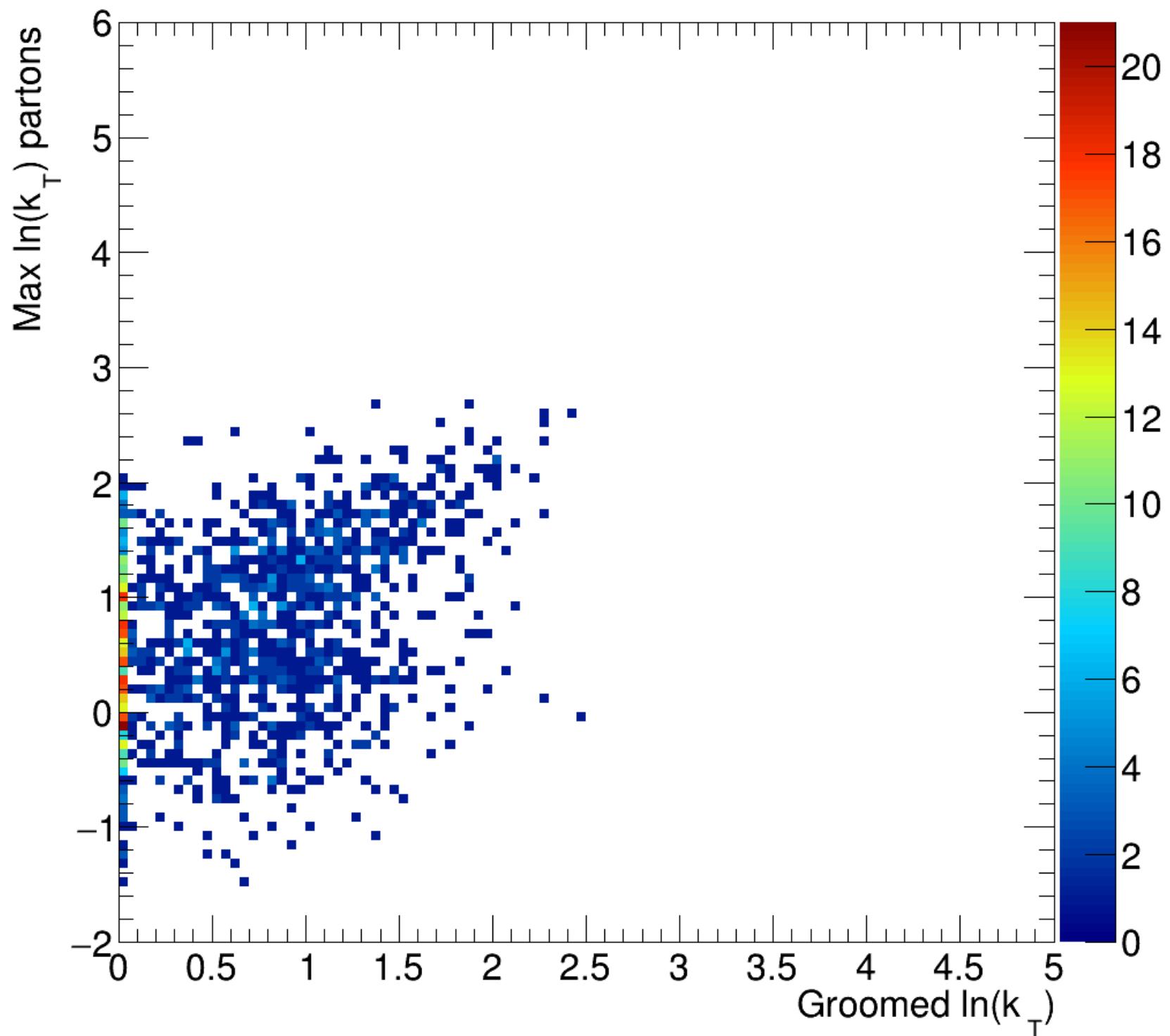
$R = 0.2$, Pythia8 PTHat 50 $p_T^{\text{jet}} > 70 \text{ GeV}$



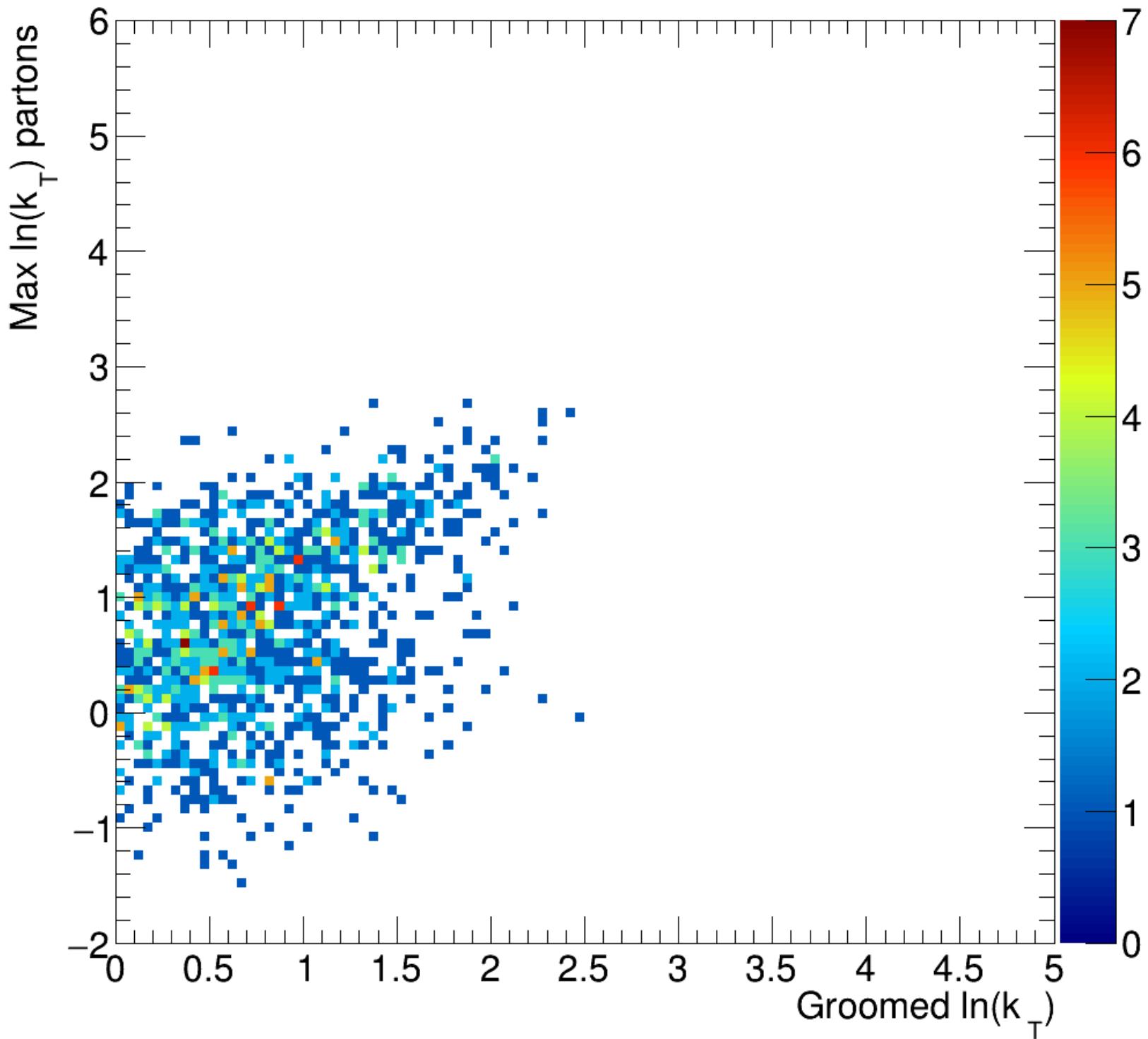
$R = 0.2$, Pythia8 PTHat 50 (5.0, 5.0) $p_T^{\text{jet}} > 70 \text{ GeV}$



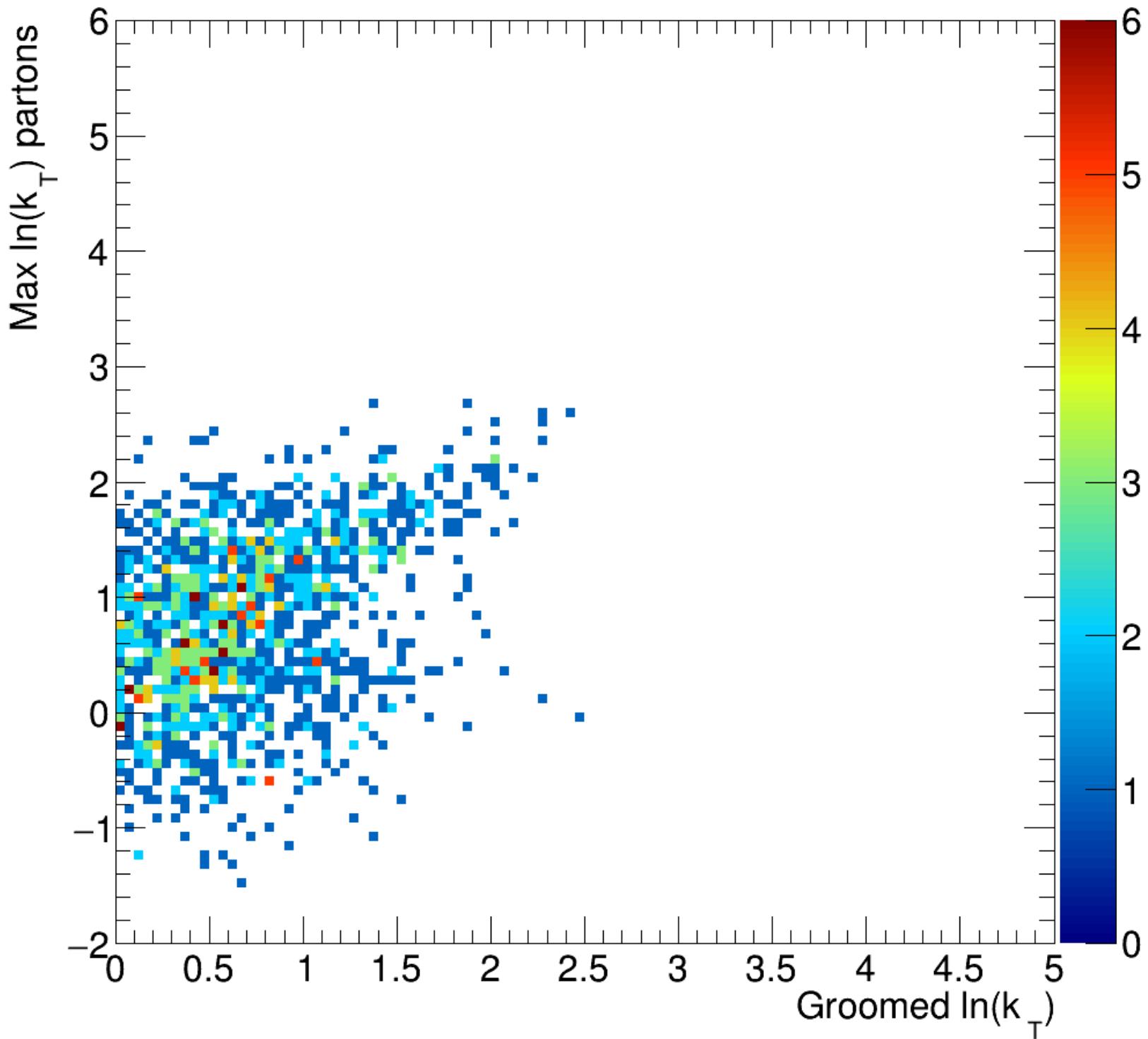
$R = 0.2$, Pythia8 PTHat 50 (0.15, -1.0) $p_T^{\text{jet}} > 70 \text{ GeV}$



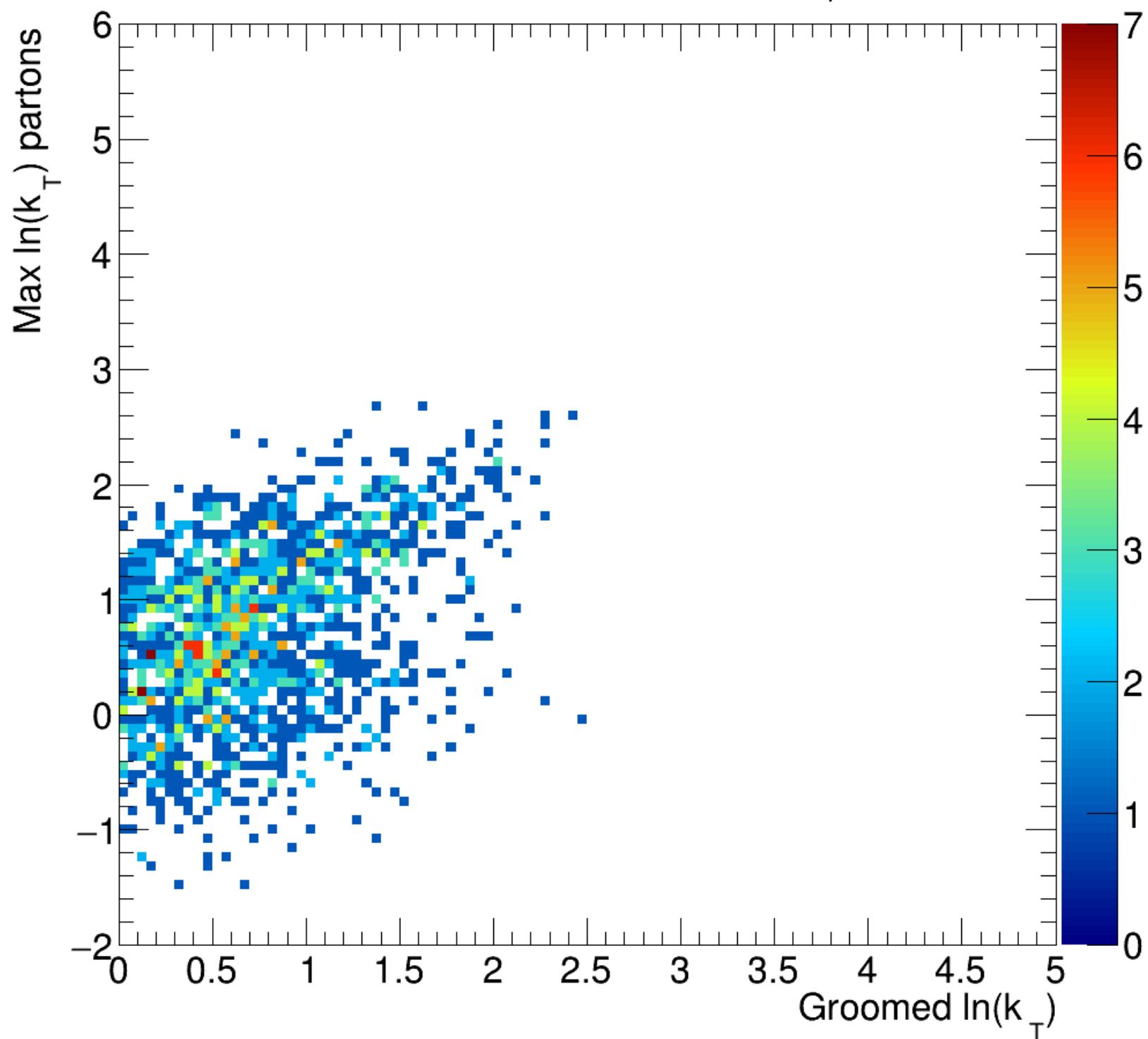
$R = 0.2$, Pythia8 PTHat 50 (0.25, 0.0) $p_T^{\text{jet}} > 70 \text{ GeV}$



$R = 0.2$, Pythia8 PTHat 50 (0.5, 1.5) $p_T^{\text{jet}} > 70 \text{ GeV}$



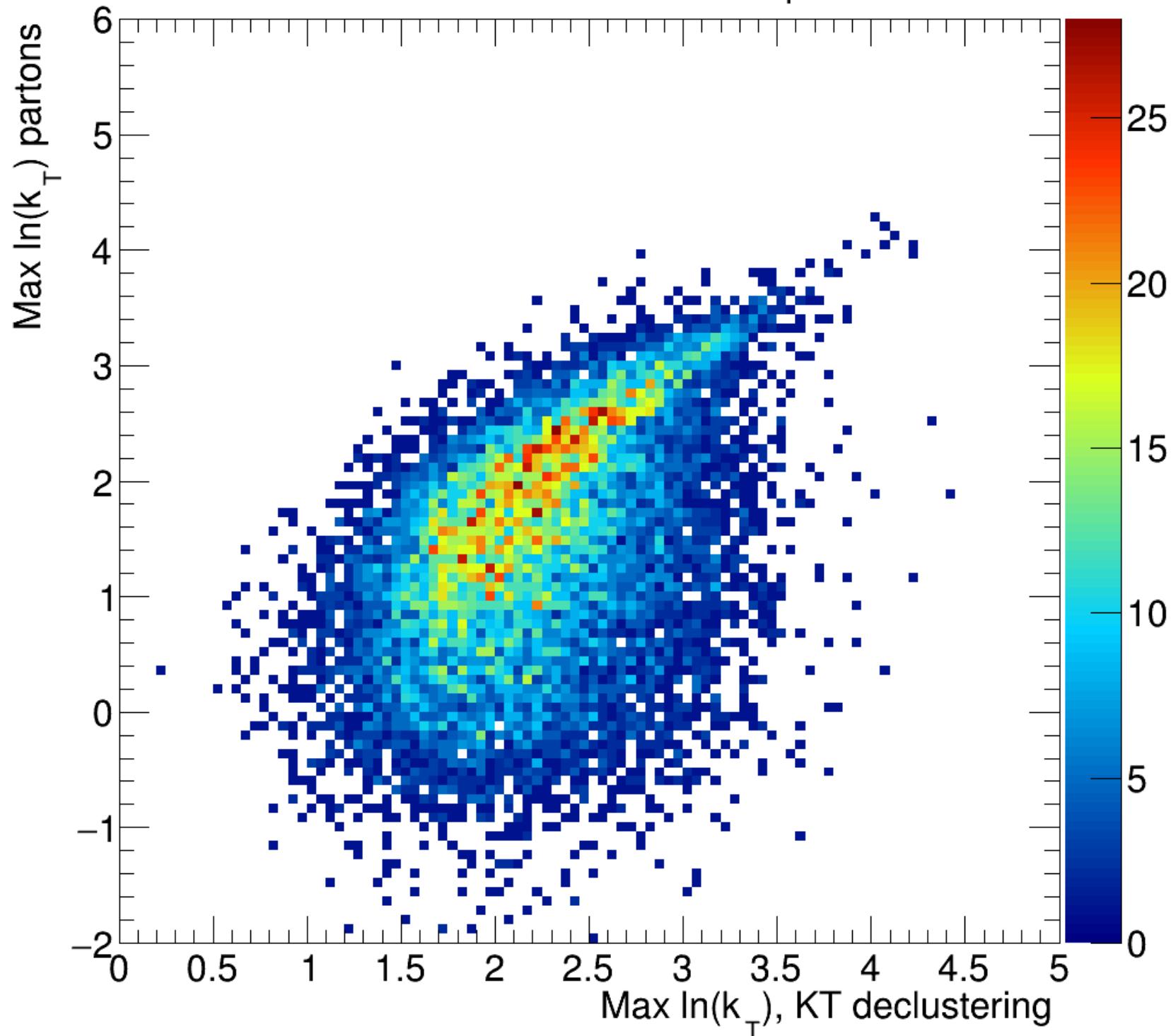
$R = 0.2$, Pythia8 PTHat 50 (0.1, 0.0) $p_T^{\text{jet}} > 70 \text{ GeV}$



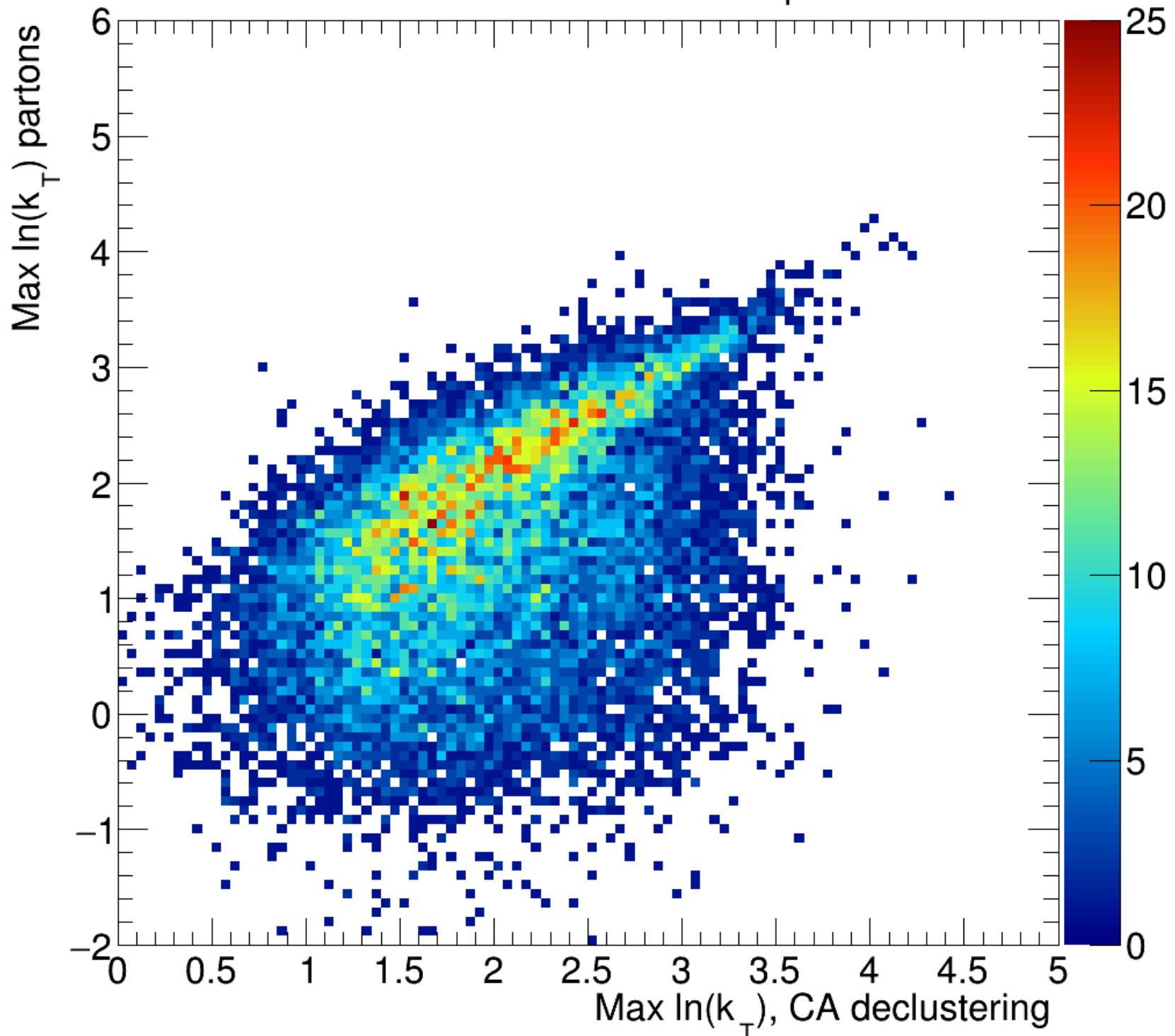
Investigation of R dependence

R=0.8

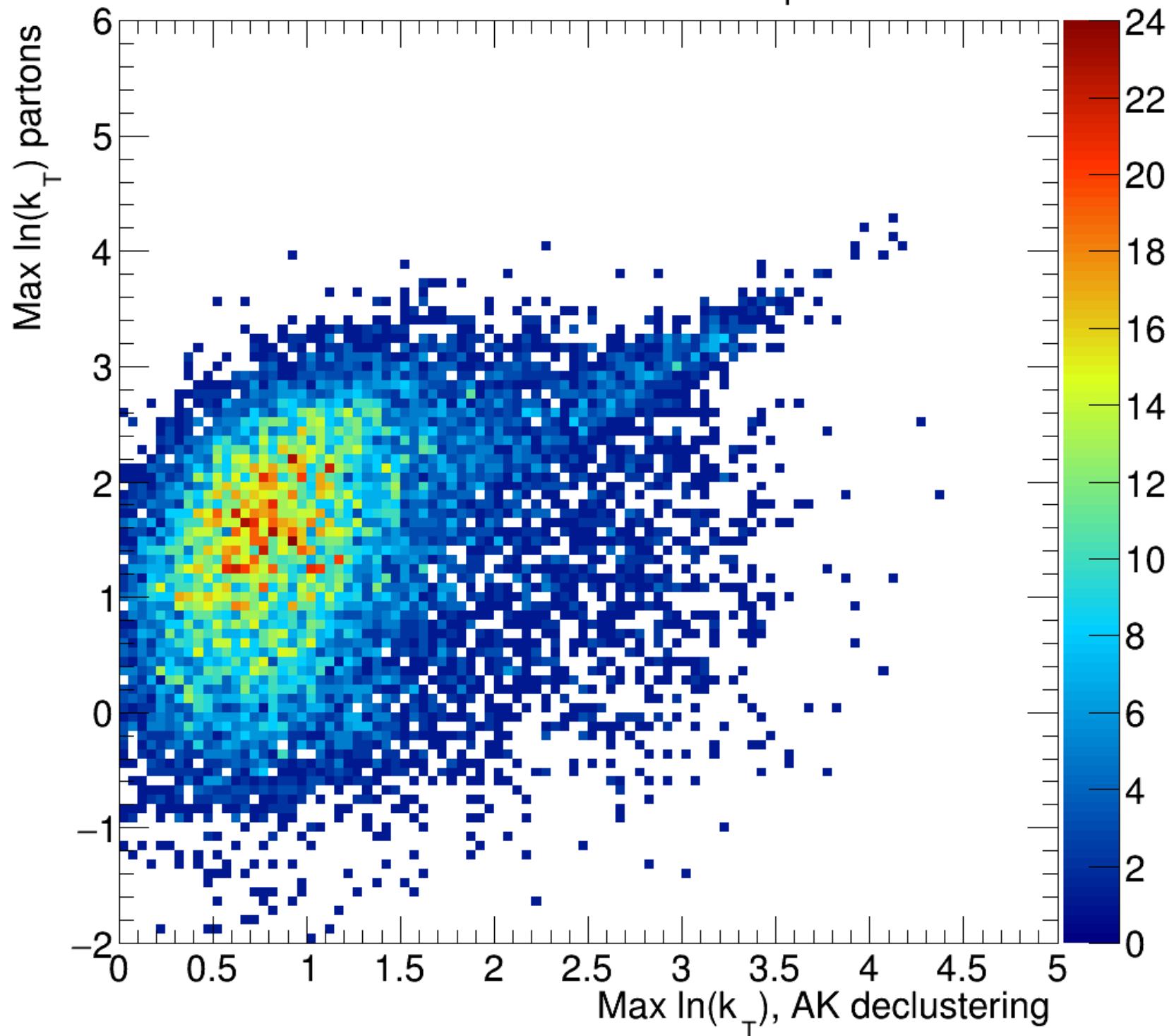
$R = 0.8$, Pythia8 PTHat 50 $p_T^{\text{jet}} > 70 \text{ GeV}$



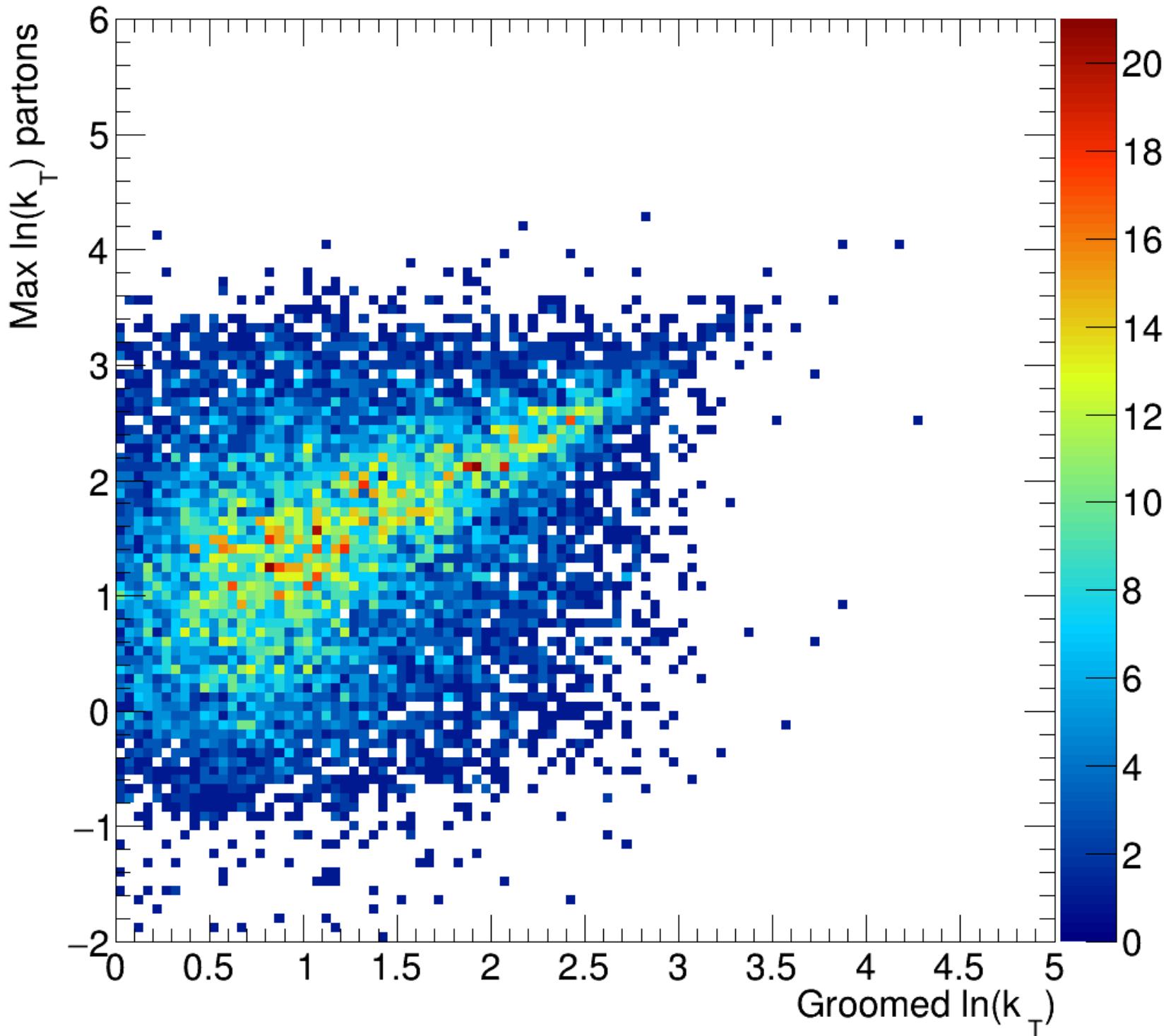
$R = 0.8$, Pythia8 PTHat 50 $p_T^{\text{jet}} > 70 \text{ GeV}$



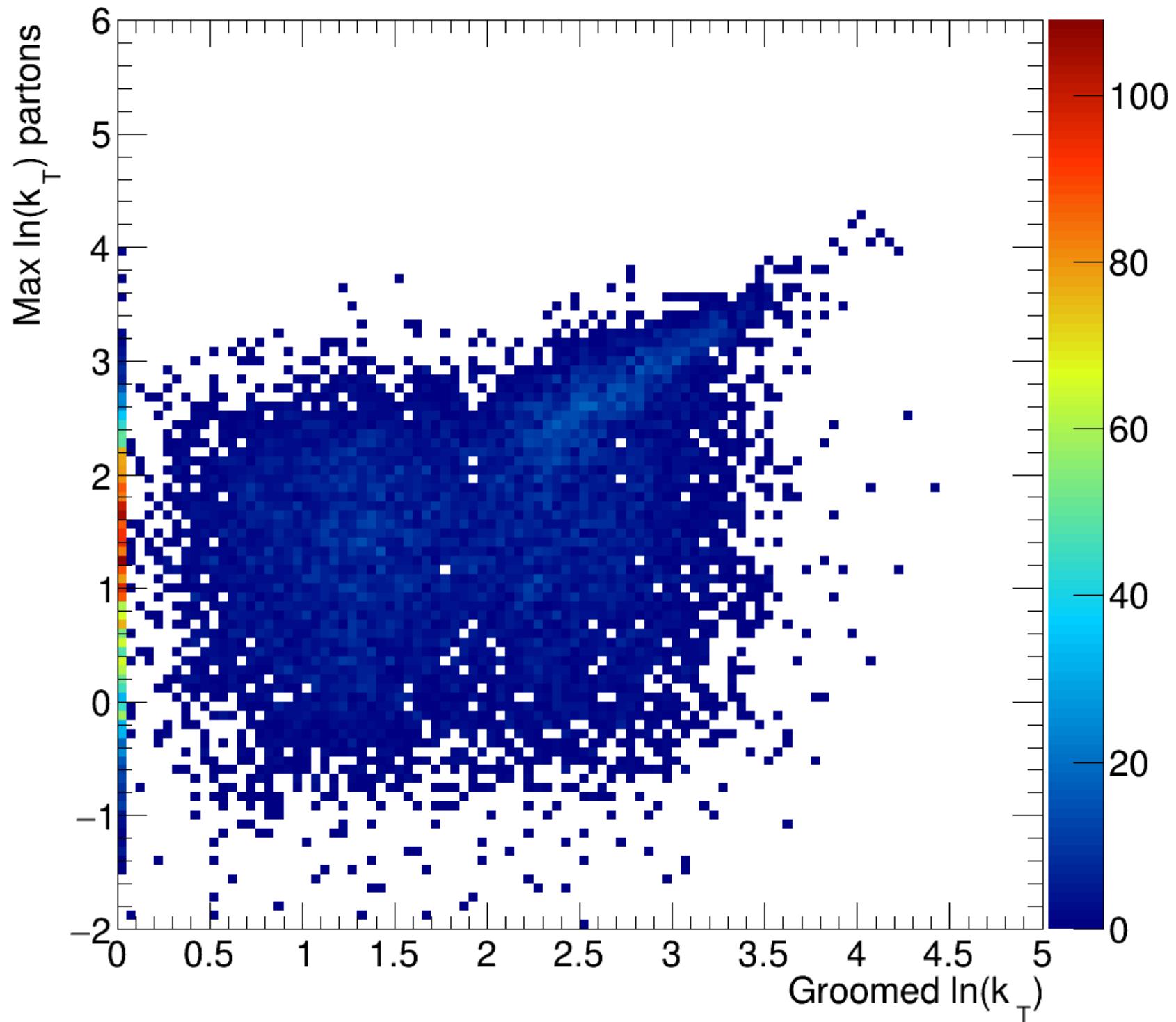
$R = 0.8$, Pythia8 PTHat 50 $p_T^{\text{jet}} > 70 \text{ GeV}$



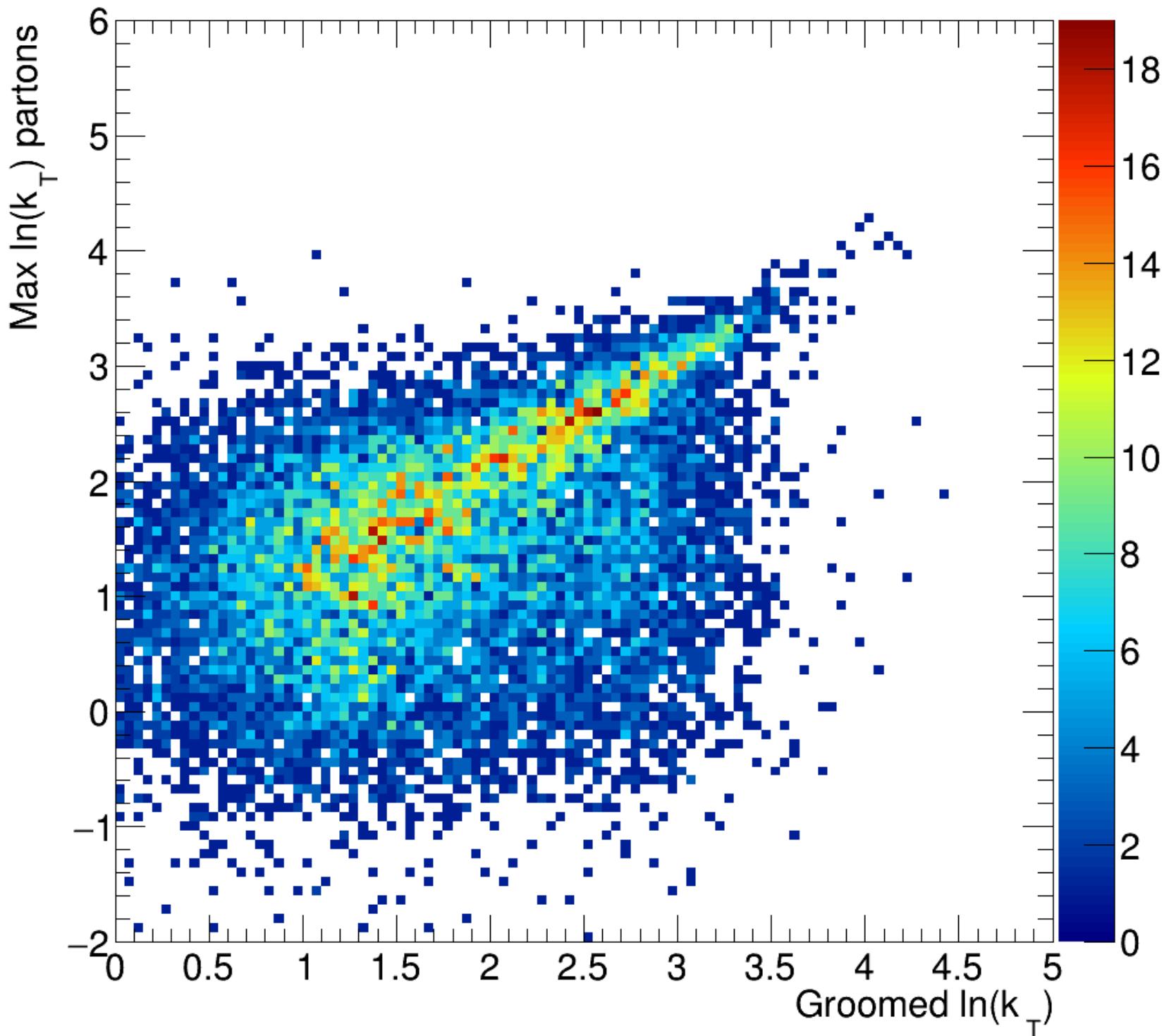
$R = 0.8$, Pythia8 PTHat 50 (5.0, 5.0) $p_T^{\text{jet}} > 70 \text{ GeV}$



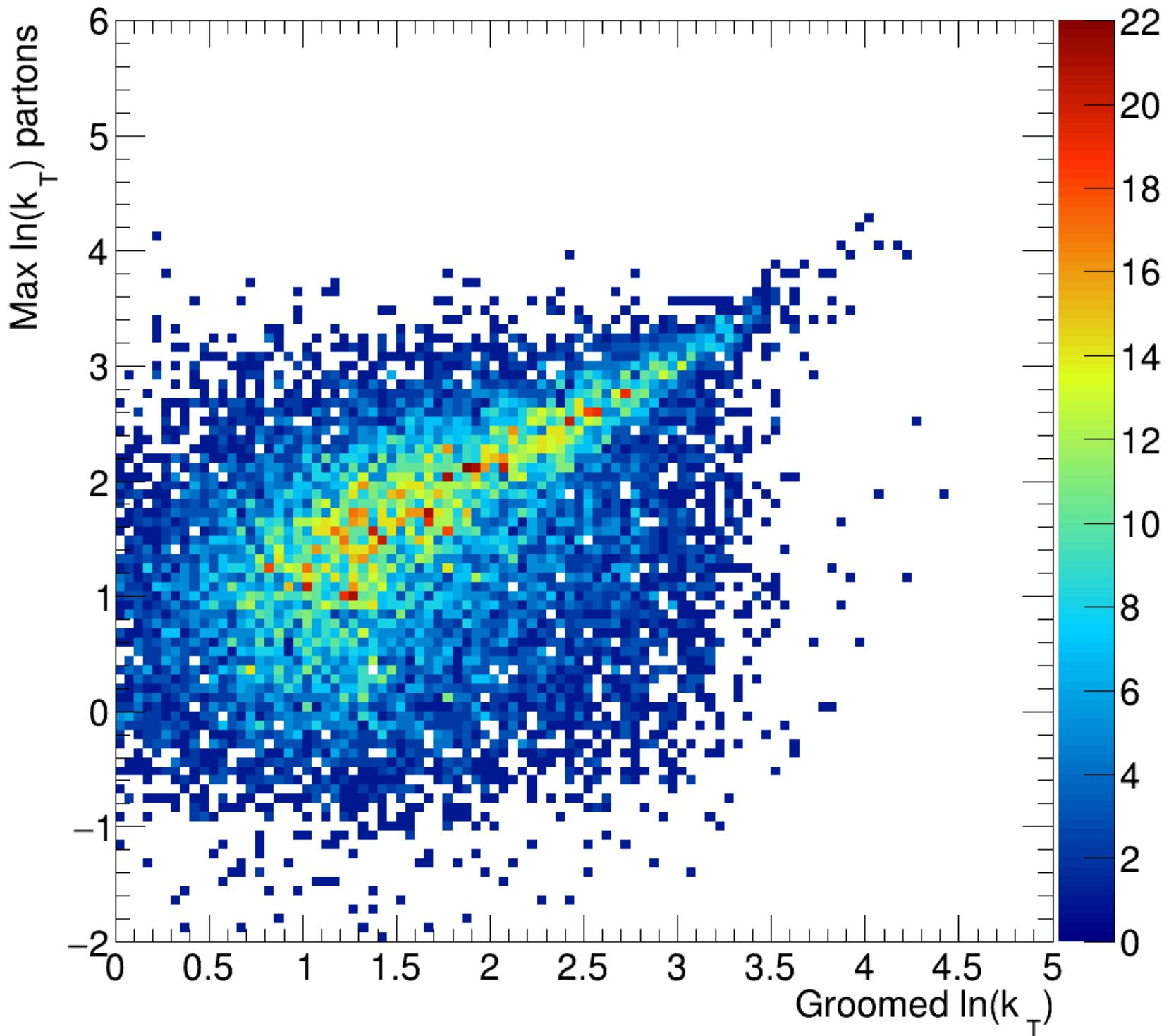
$R = 0.8$, Pythia8 PTHat 50 (0.15, -1.0) $p_T^{\text{jet}} > 70 \text{ GeV}$



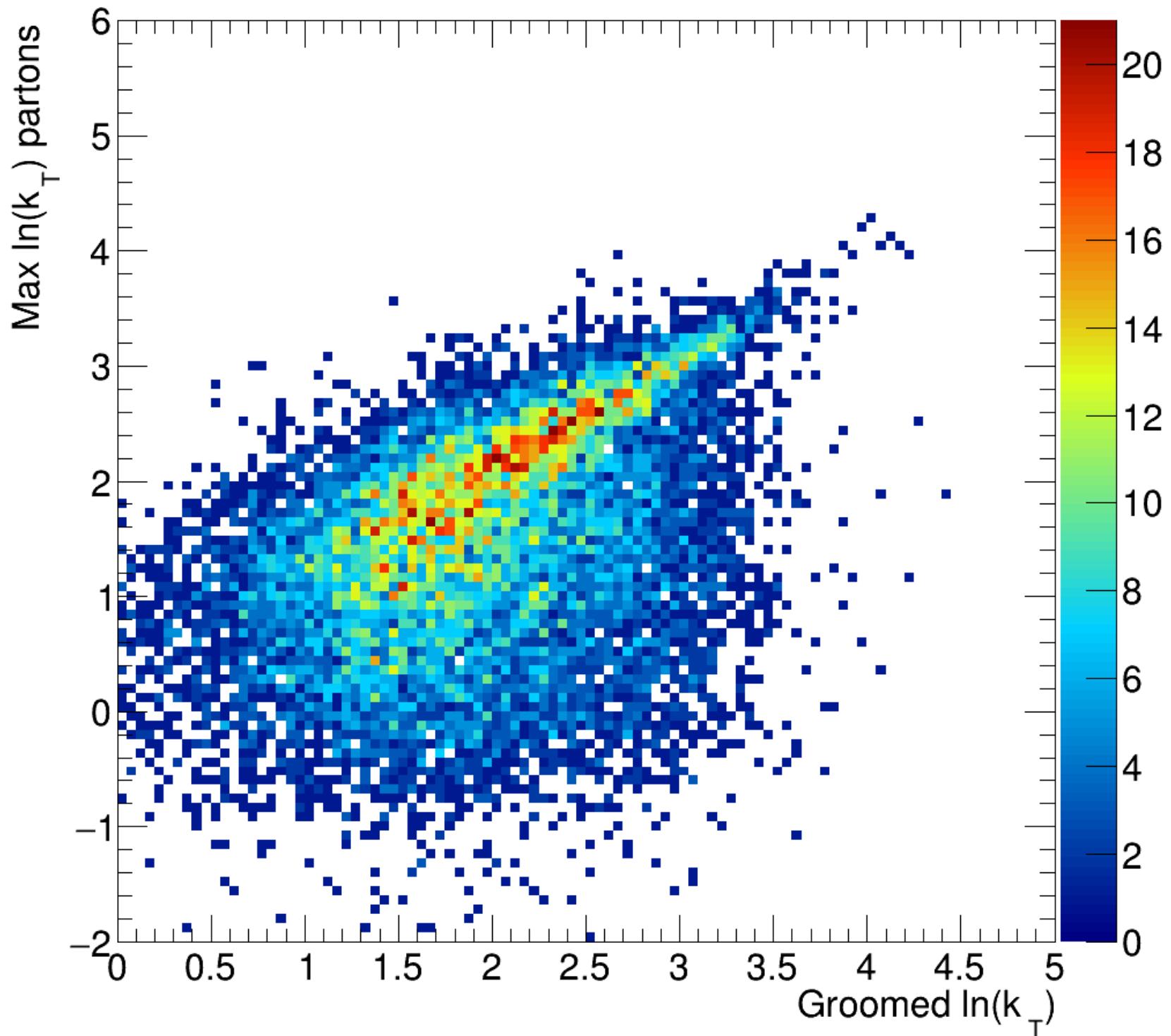
$R = 0.8$, Pythia8 PTHat 50 (0.25, 0.0) $p_T^{\text{jet}} > 70 \text{ GeV}$



$R = 0.8$, Pythia8 PTHat 50 (0.5, 1.5) $p_T^{\text{jet}} > 70 \text{ GeV}$



$R = 0.8$, Pythia8 PTHat 50 (0.1, 0.0) $p_T^{\text{jet}} > 70 \text{ GeV}$



Check on HERWIG

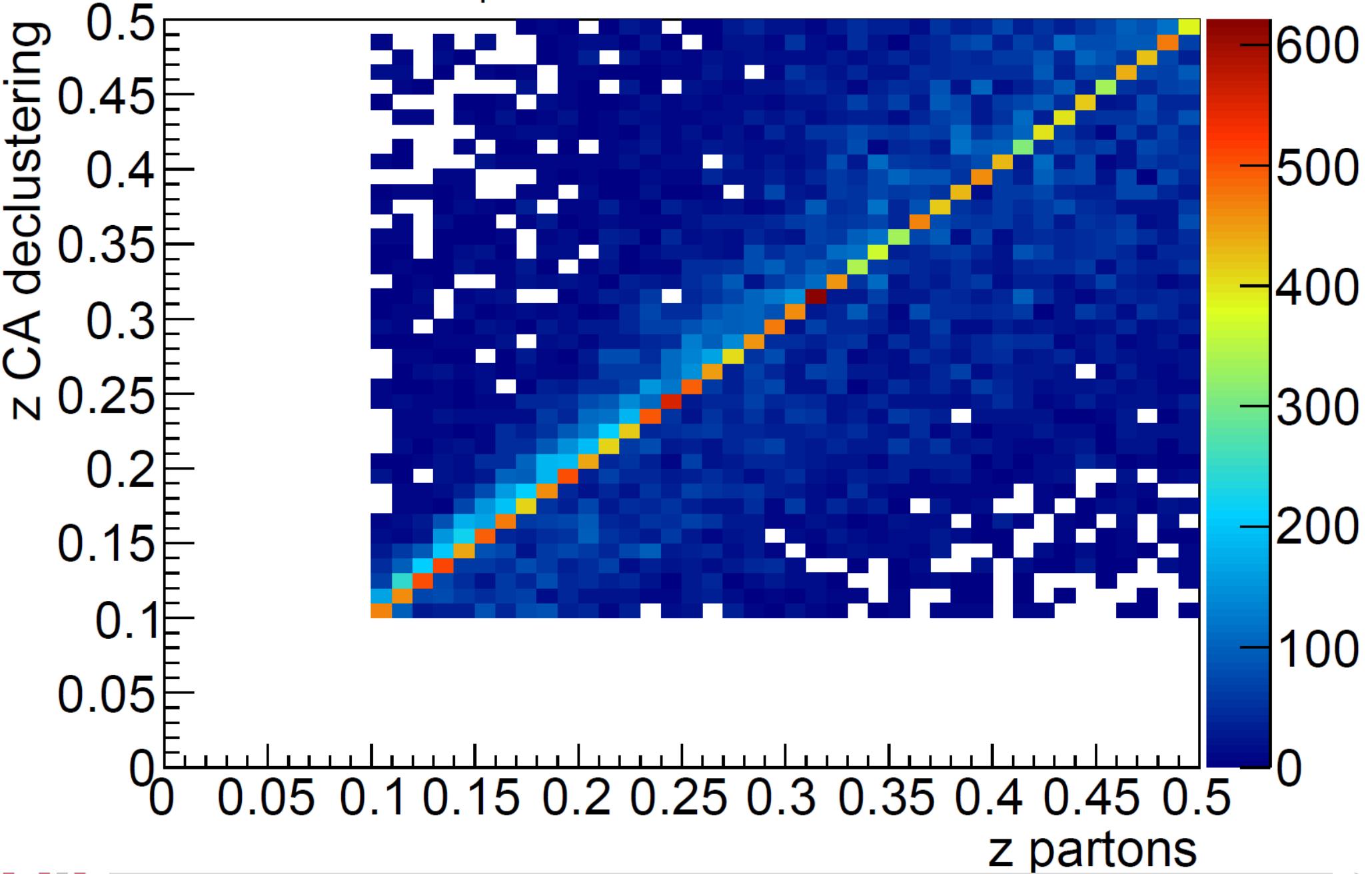
HERWIG is
Parton Level



Herwig, dijet tune, $\sqrt{s} = 5.02$ TeV

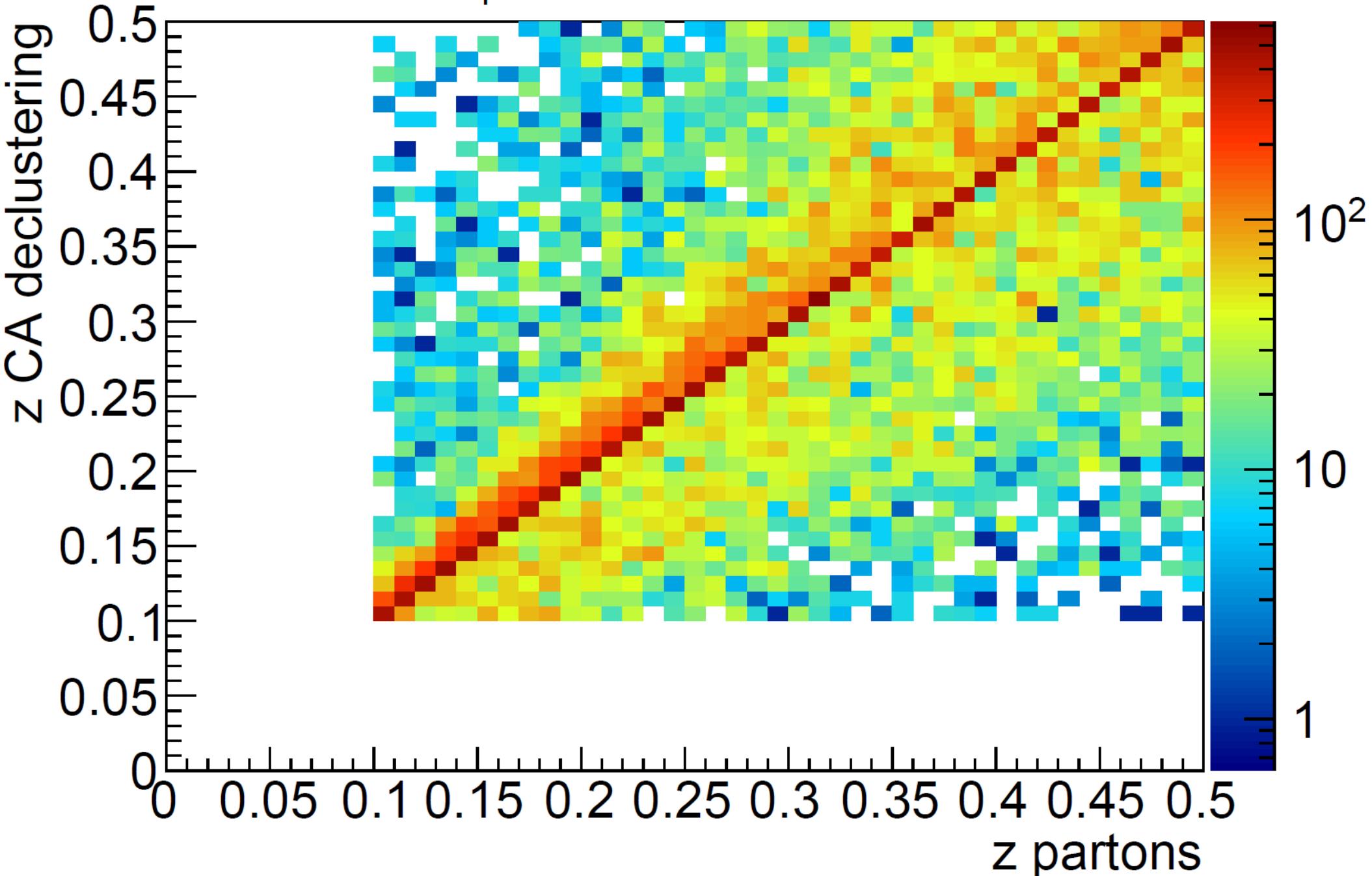
$p_{\text{jet}}^{\text{jet}} > 70$ GeV, $|\eta| < 2$

Max $\ln(k_T)$ selection, soft drop (0.1, 0)



Herwig, dijet tune, $\sqrt{s} = 5.02$ TeV

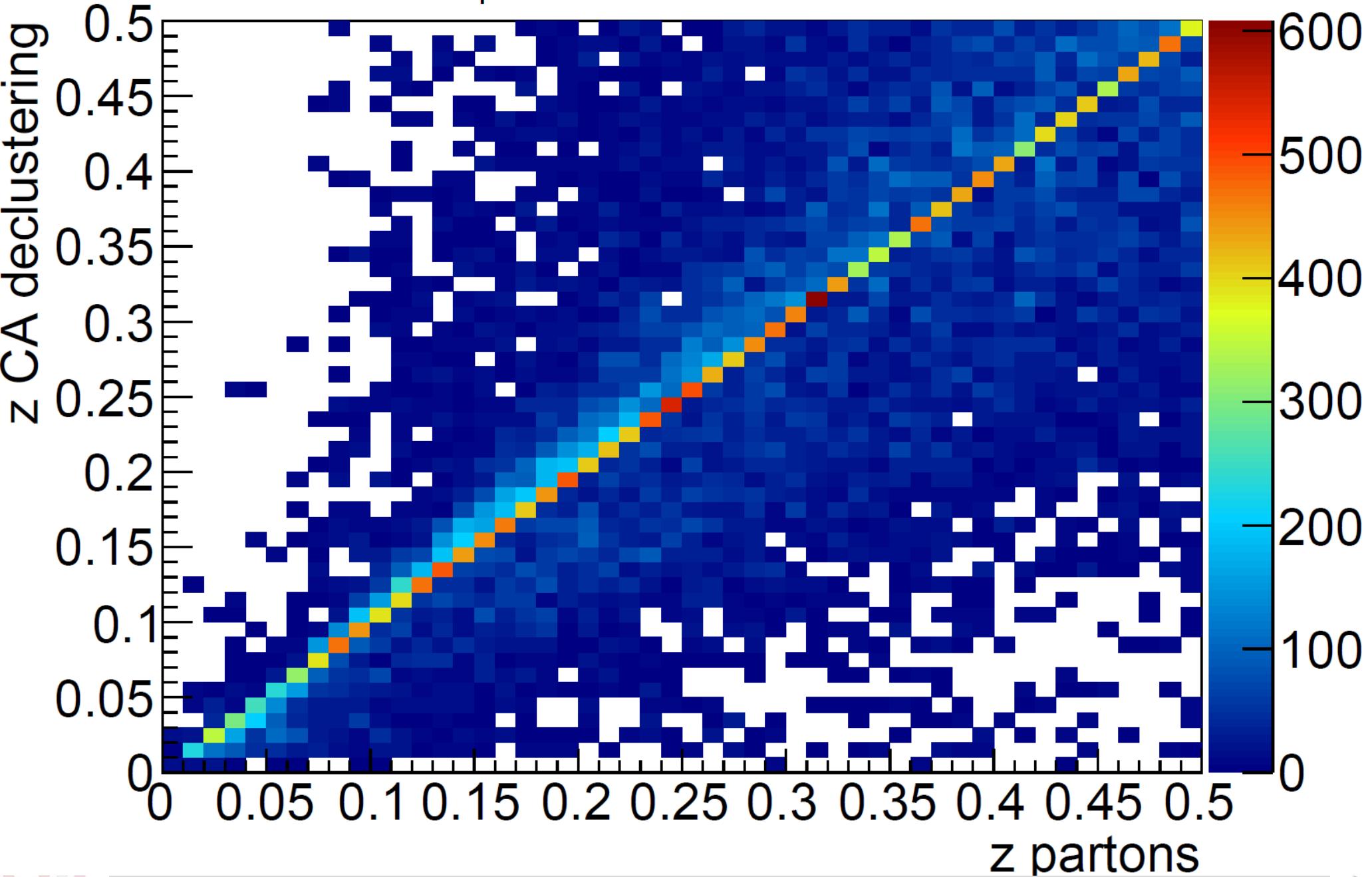
$p_{\text{jet}}^{\text{jet}} > 70$ GeV, $|\eta| < 2$
Max $\ln(k_T)$ selection, soft drop (0.1, 0)



Herwig, dijet tune, $\sqrt{s} = 5.02$ TeV

$p_{\text{jet}}^{\text{jet}} > 70$ GeV, $|\eta| < 2$

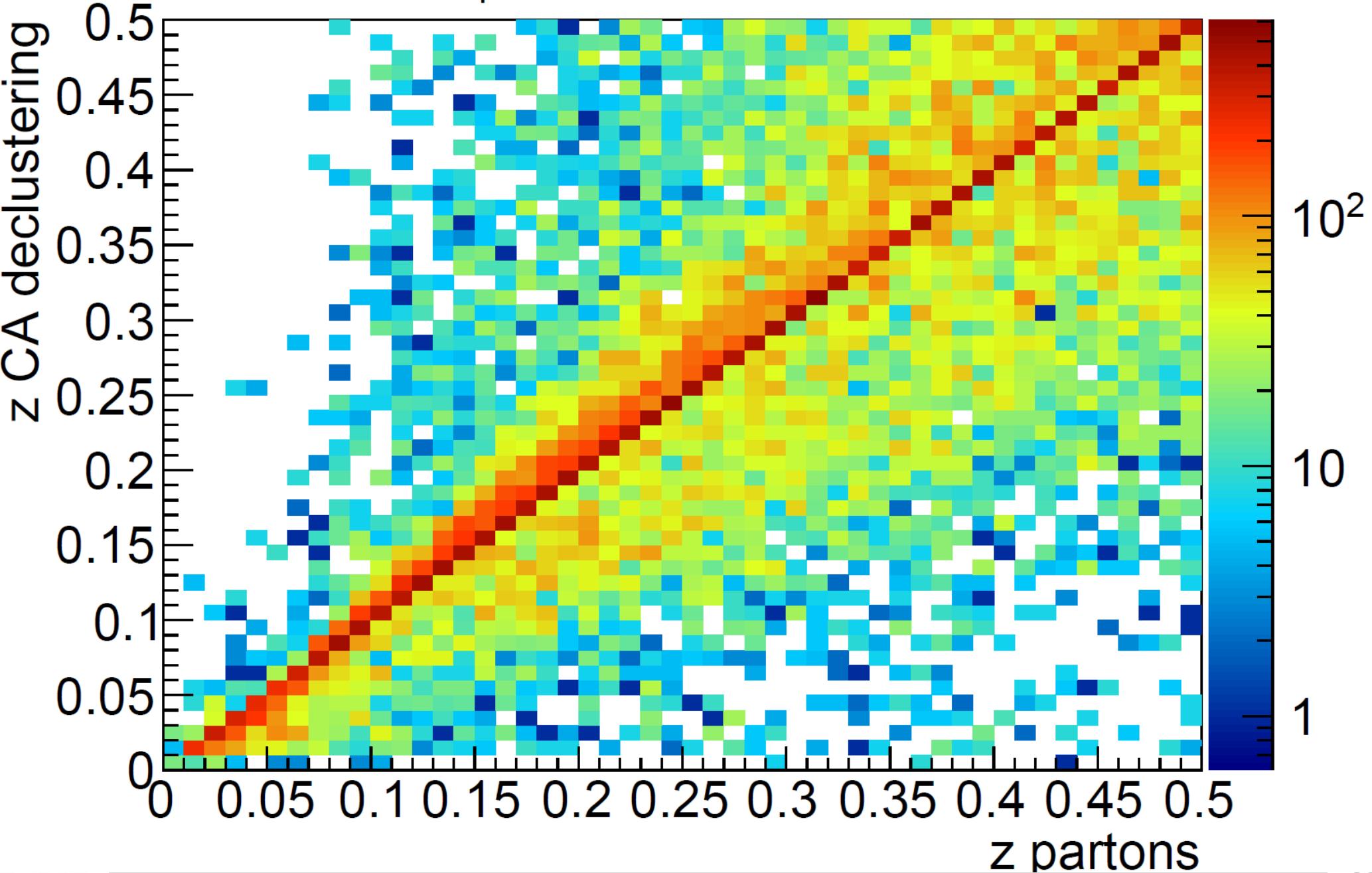
Max $\ln(k_T)$ selection, no softdrop



Herwig, dijet tune, $\sqrt{s} = 5.02$ TeV

$p_{\text{jet}}^{\text{jet}} > 70$ GeV, $|\eta| < 2$

Max $\ln(k_T)$ selection, no softdrop

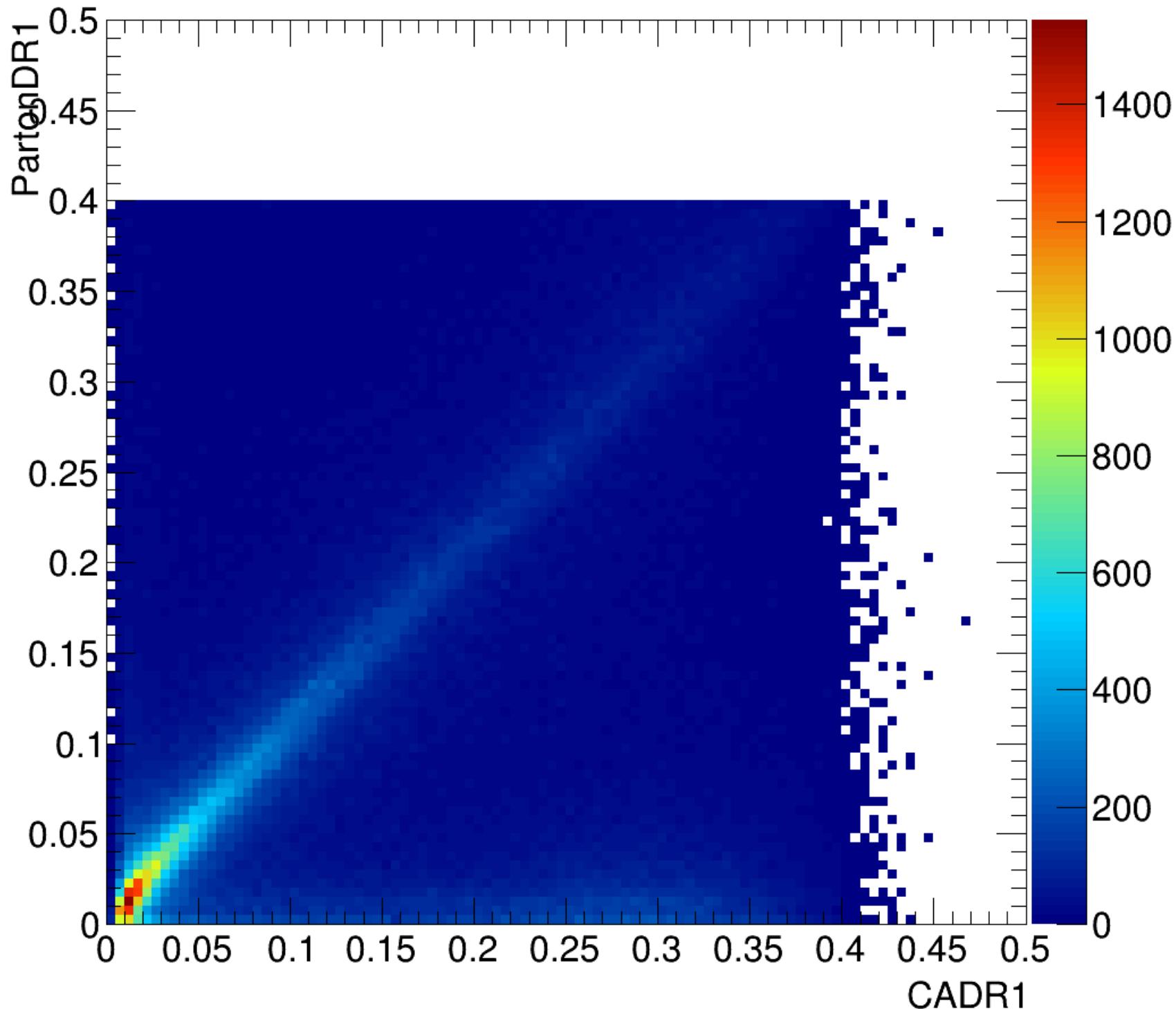


What Failed?

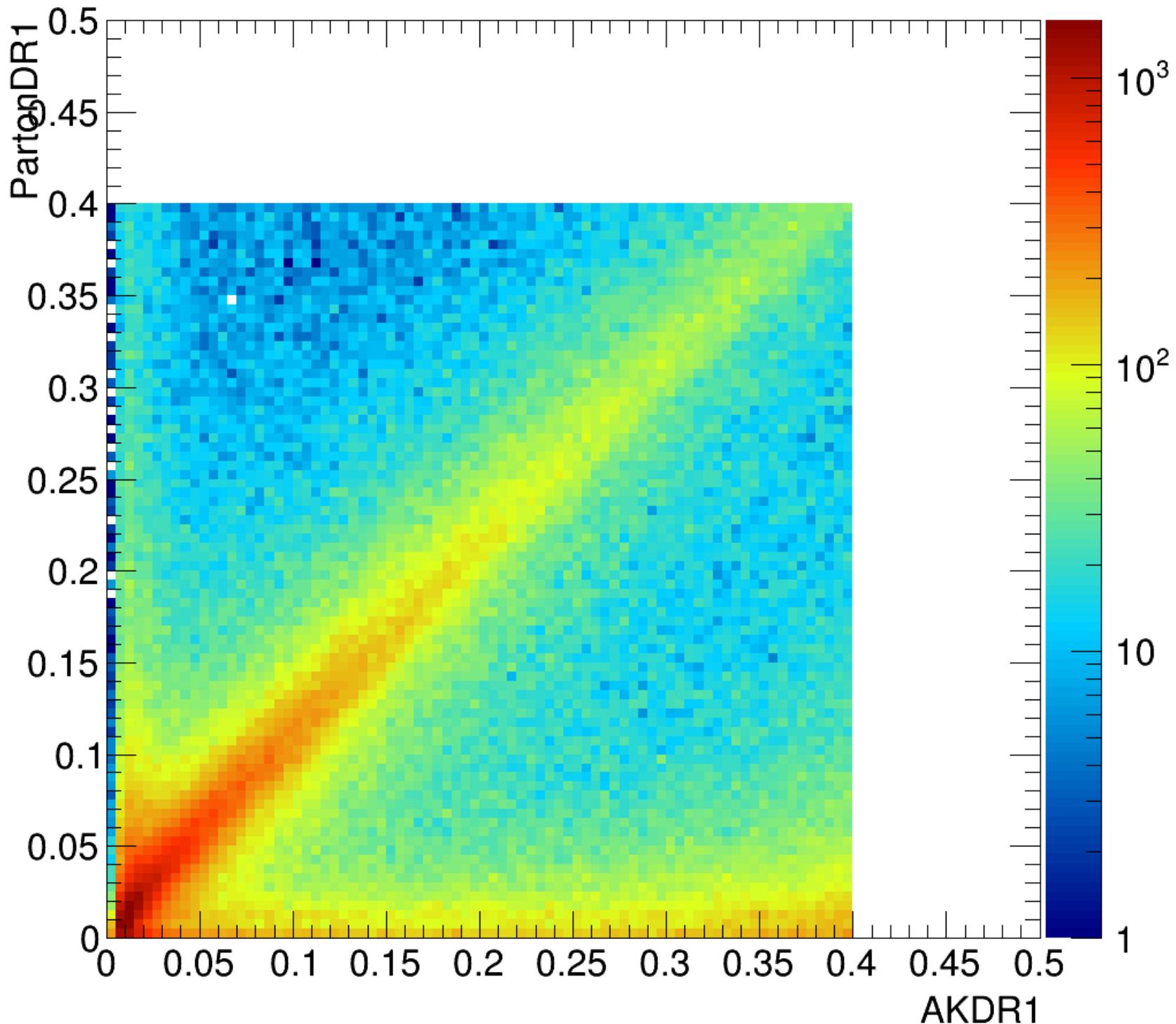
Check DR



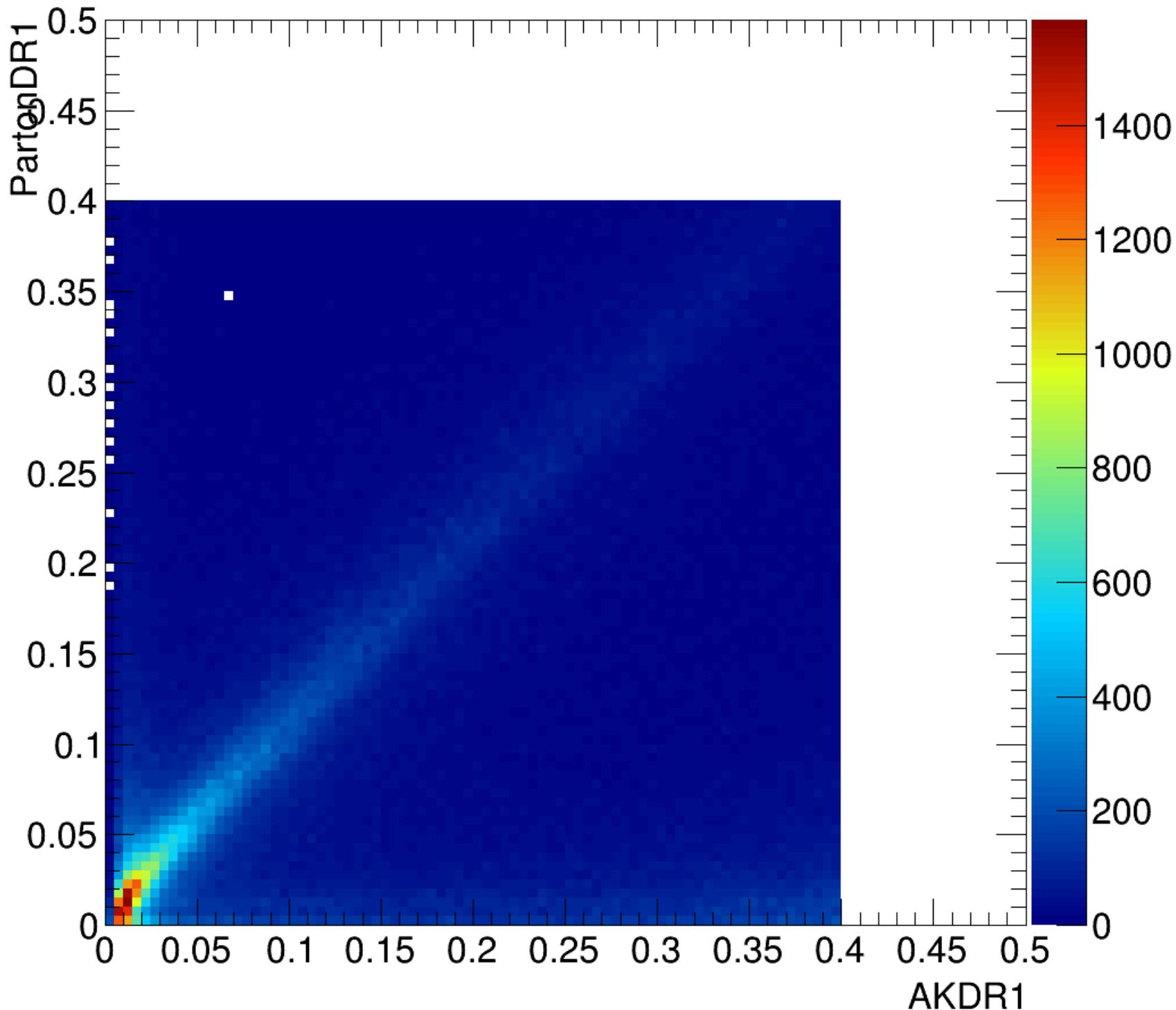
PYTHIA8 Pthat300 Jet pT>350 GeVCA Declustering



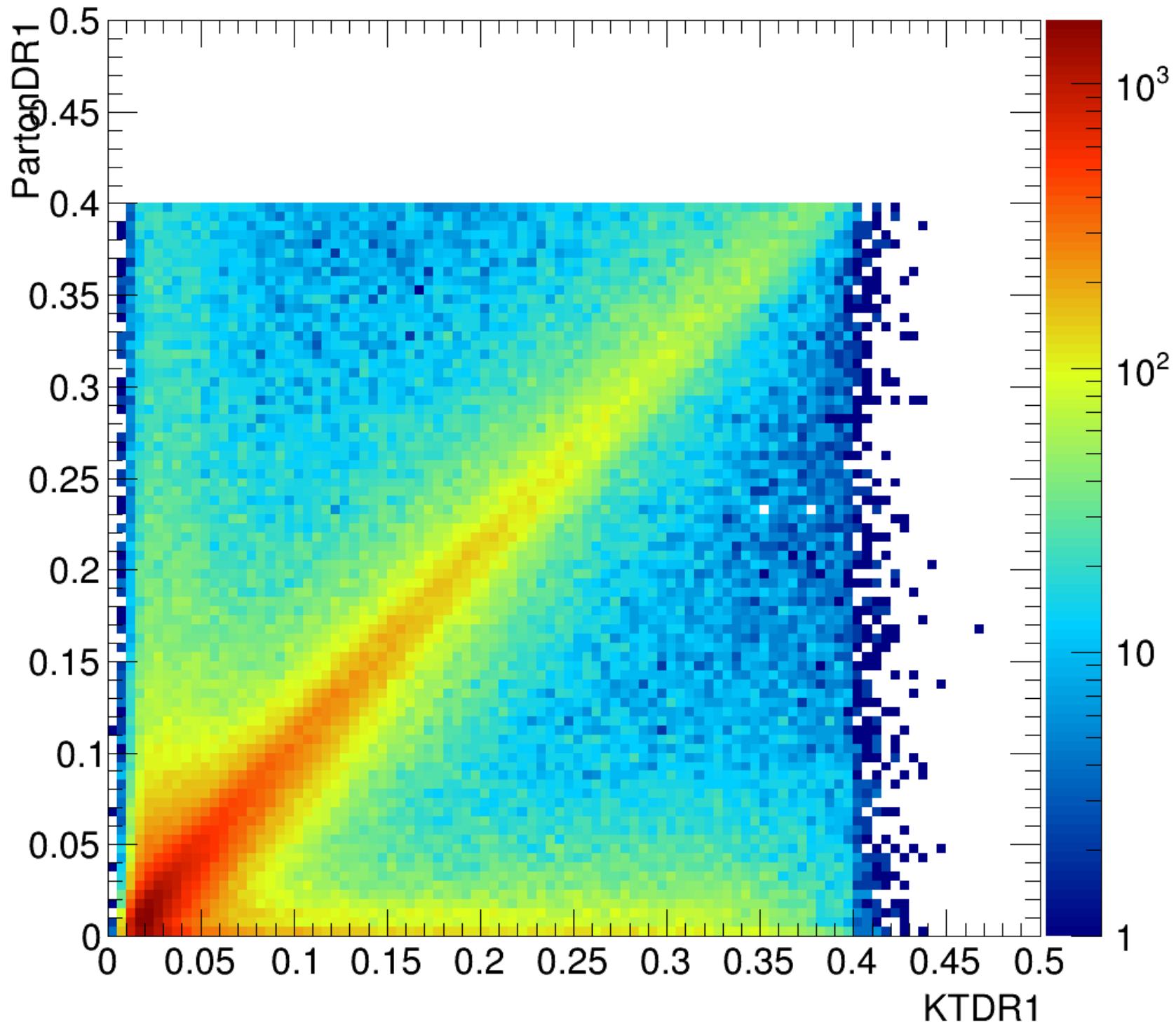
PYTHIA8 Pthat300 Jet pT>350 GeVAK Declustering



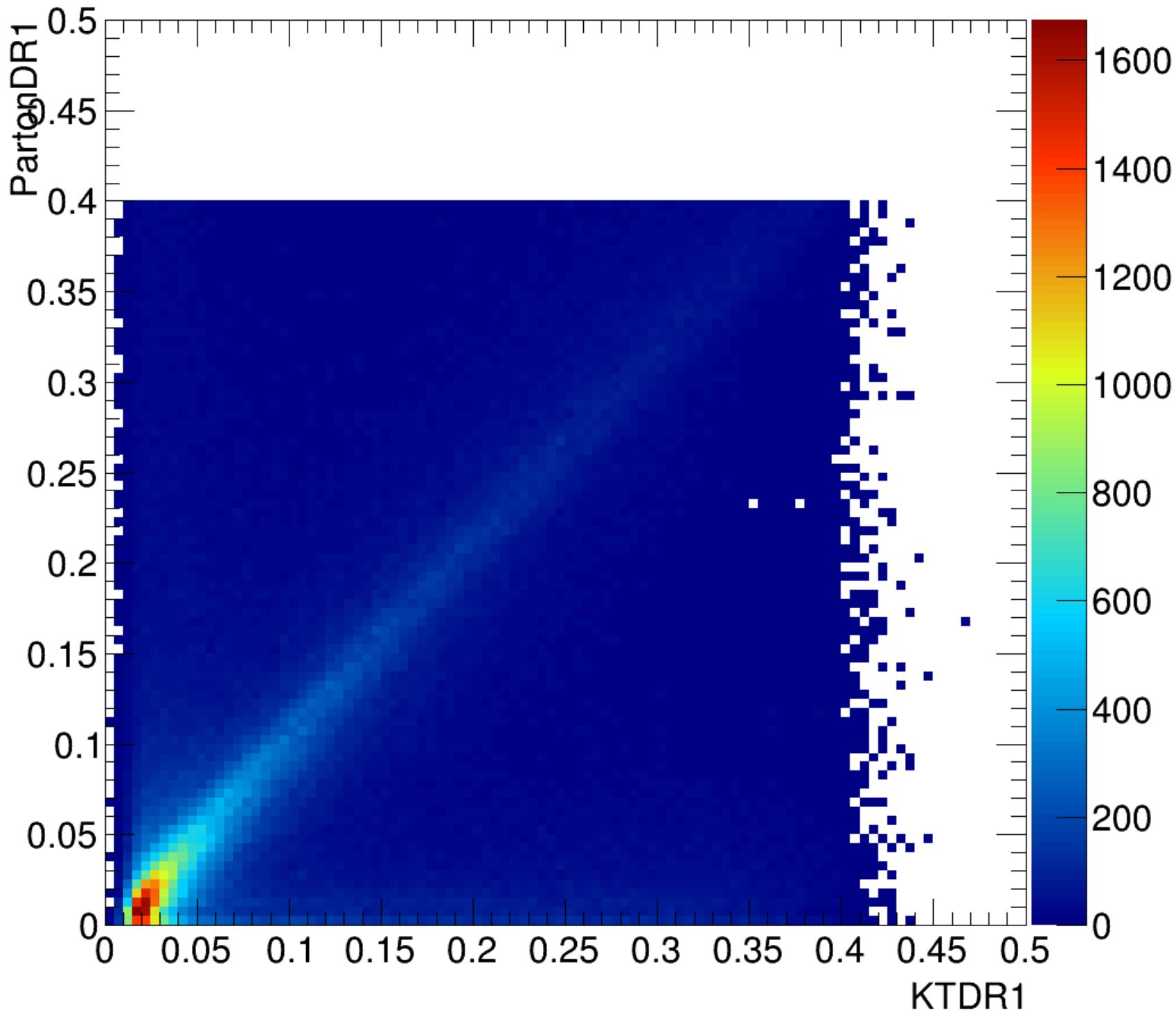
PYTHIA8 Pthat300 Jet pT>350 GeVAK Declustering



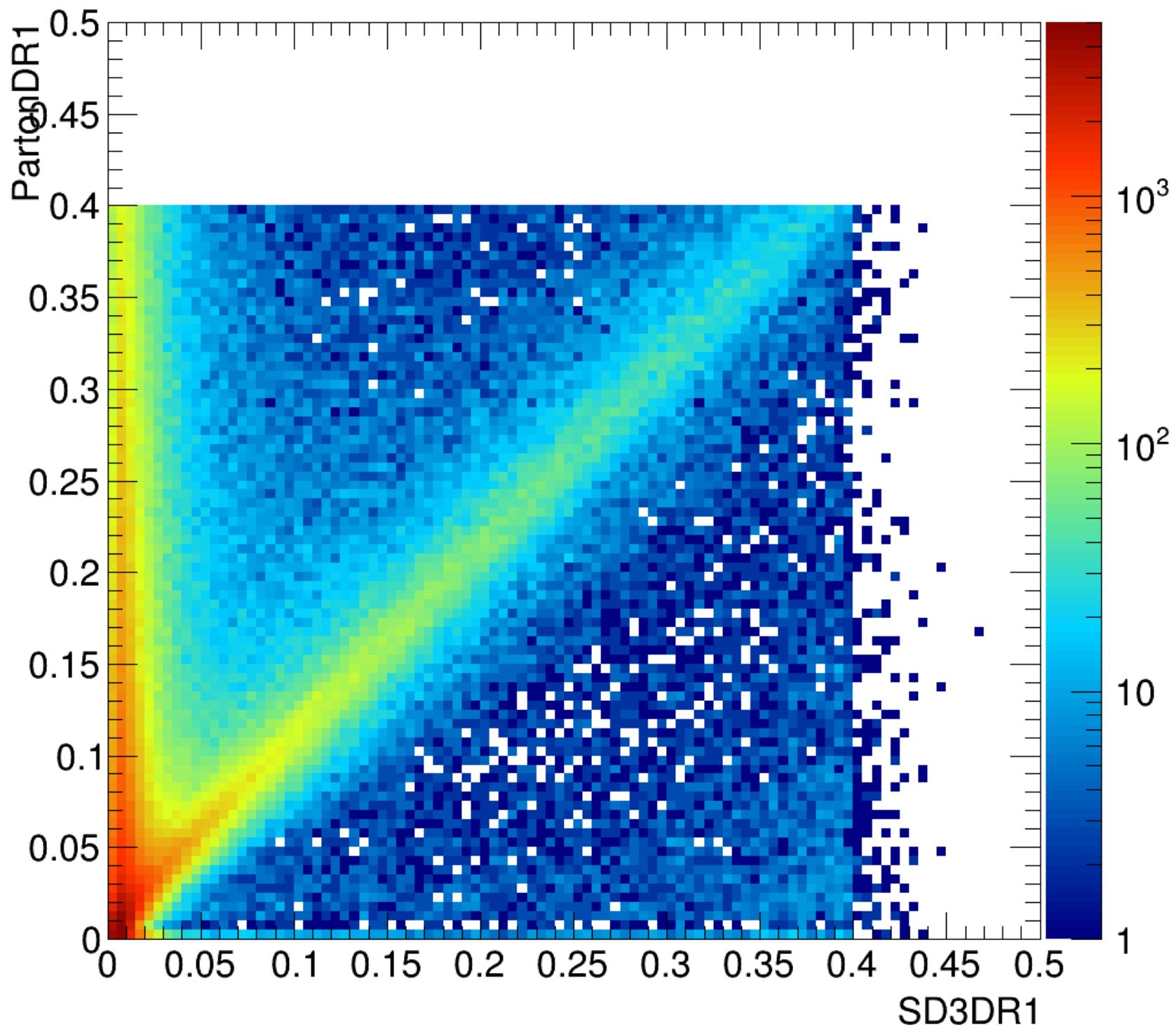
PYTHIA8 Pthat300 Jet pT>350 GeVKT Declustering



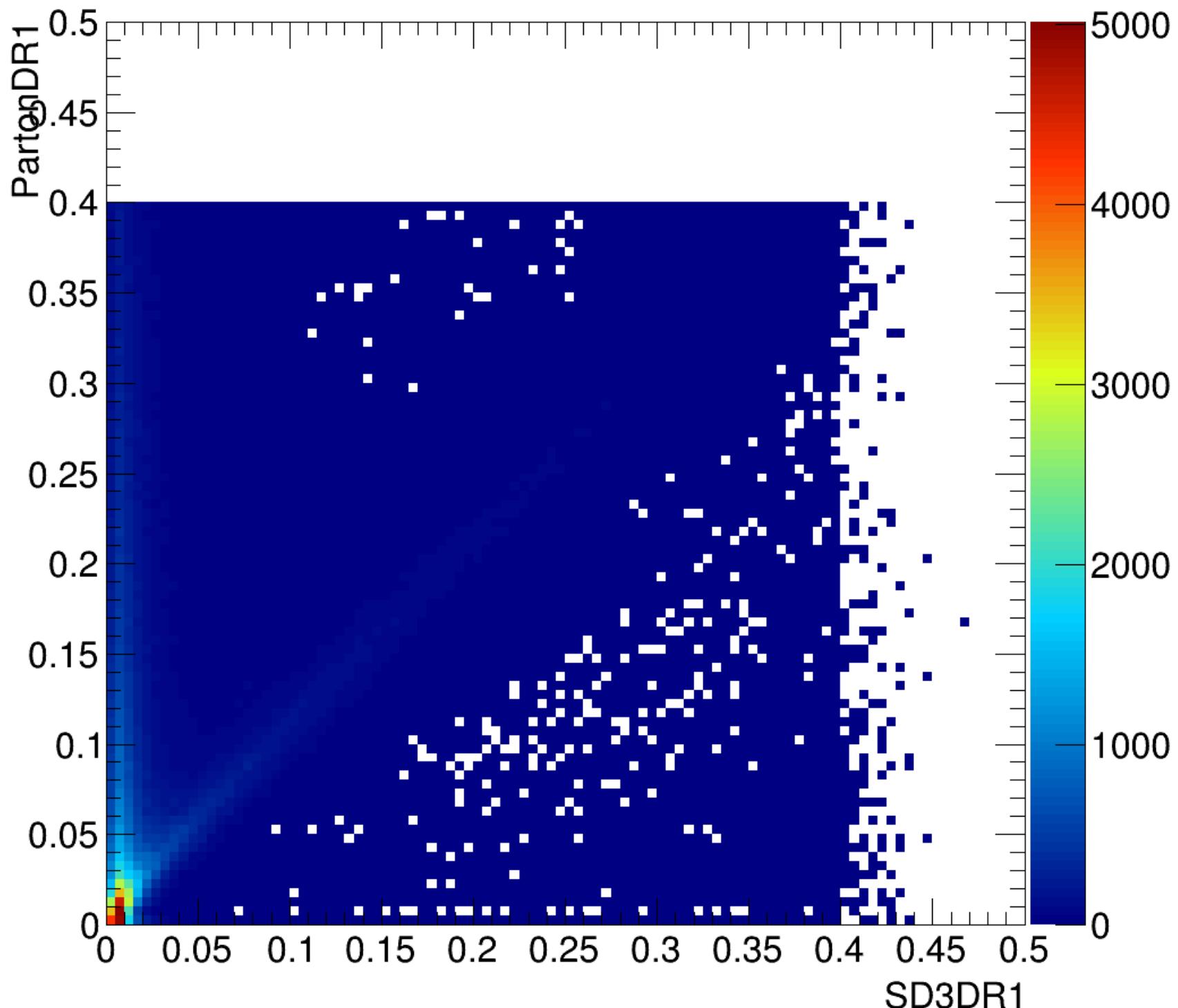
PYTHIA8 Pthat300 Jet pT>350 GeVKT Declustering



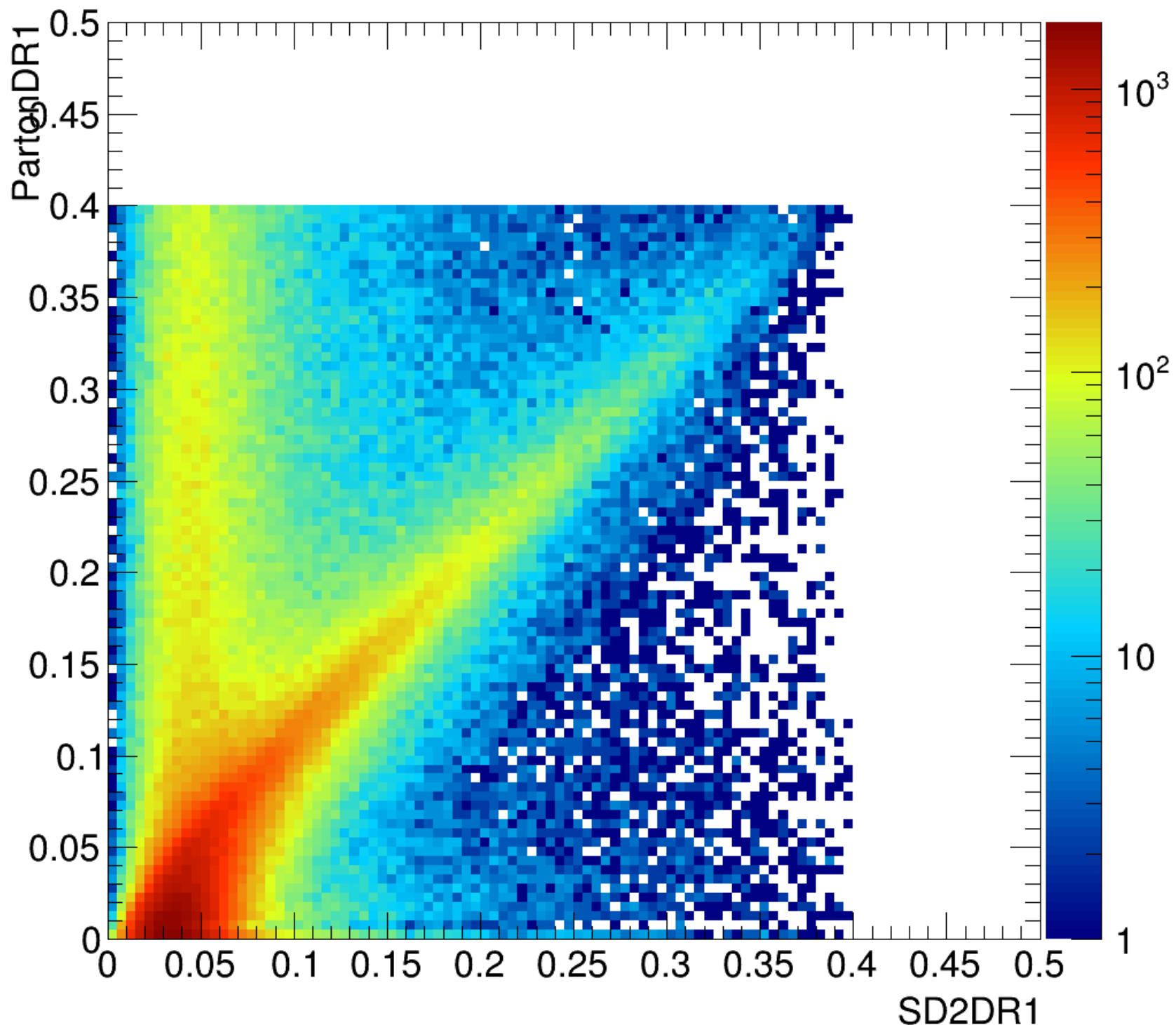
PYTHIA8 Pthat300 Jet pT>350 GeV(Z_{cut}, β)=(0.25,0.0)



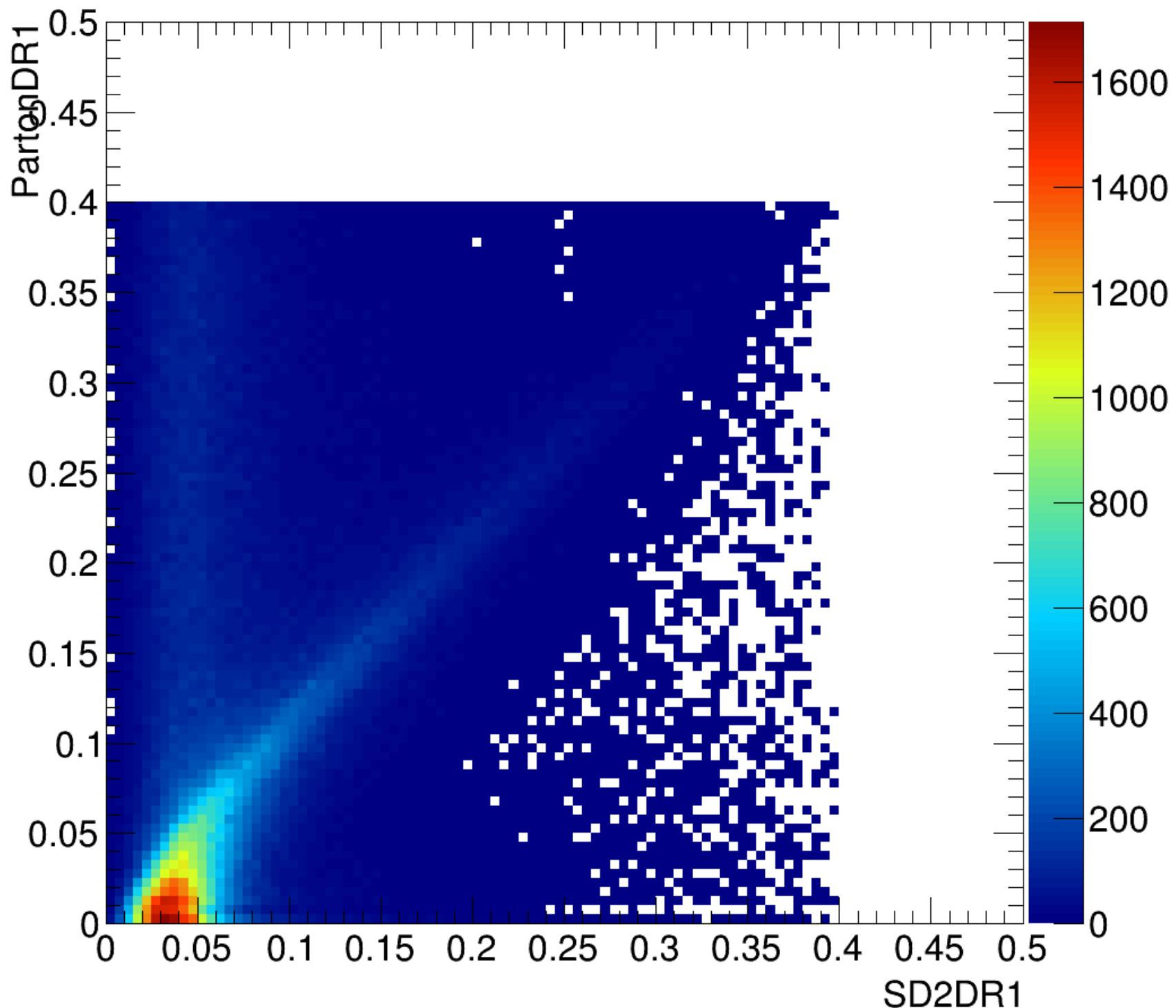
PYTHIA8 Pthat300 Jet pT>350 GeV(Z_{cut}, β)=(0.25,0.0)



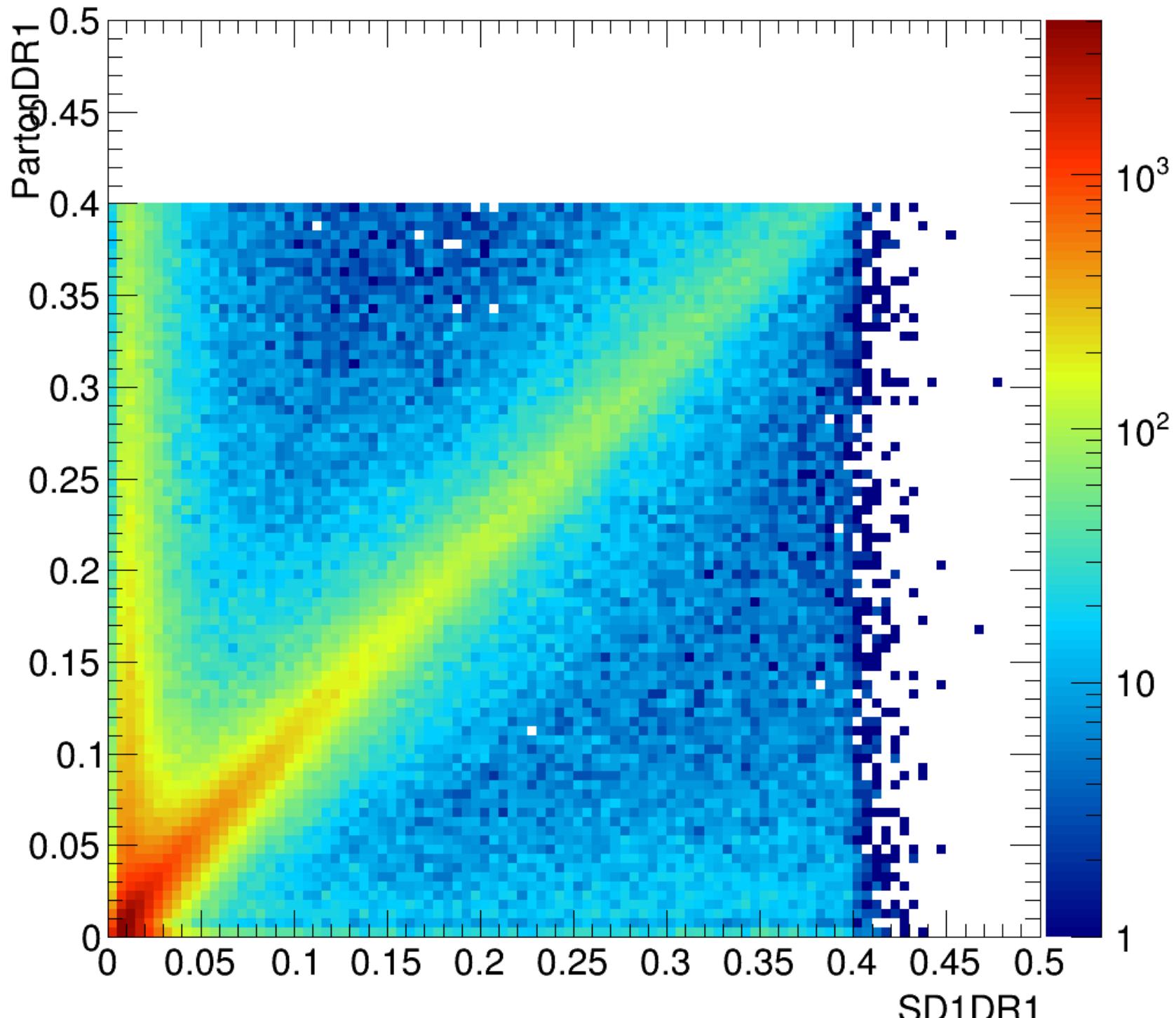
PYTHIA8 Pthat300 Jet pT>350 GeV(Z_{cut}, β)=(0.5,1.5)



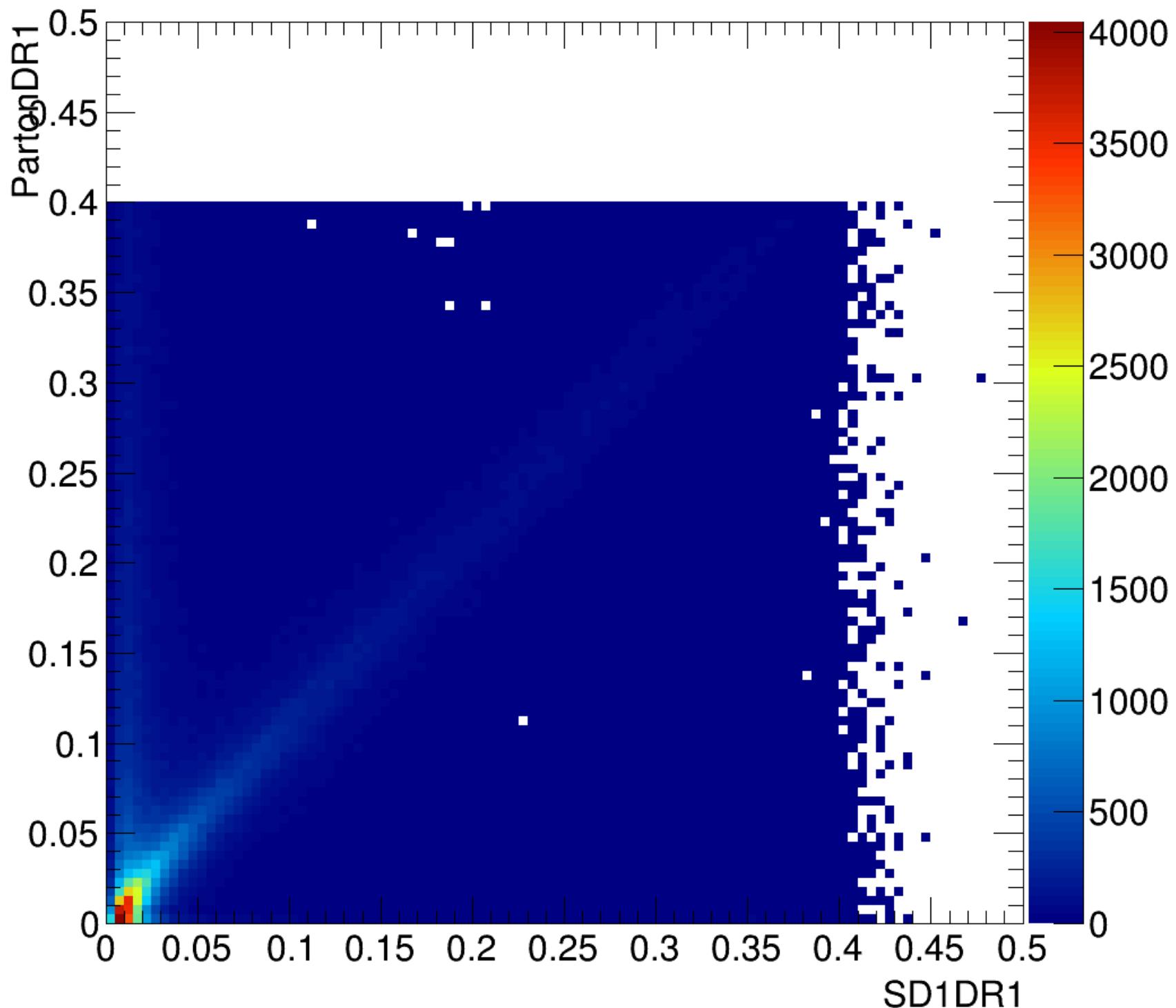
PYTHIA8 Pthat300 Jet pT>350 GeV(Z_{cut}, β)=(0.5,1.5)



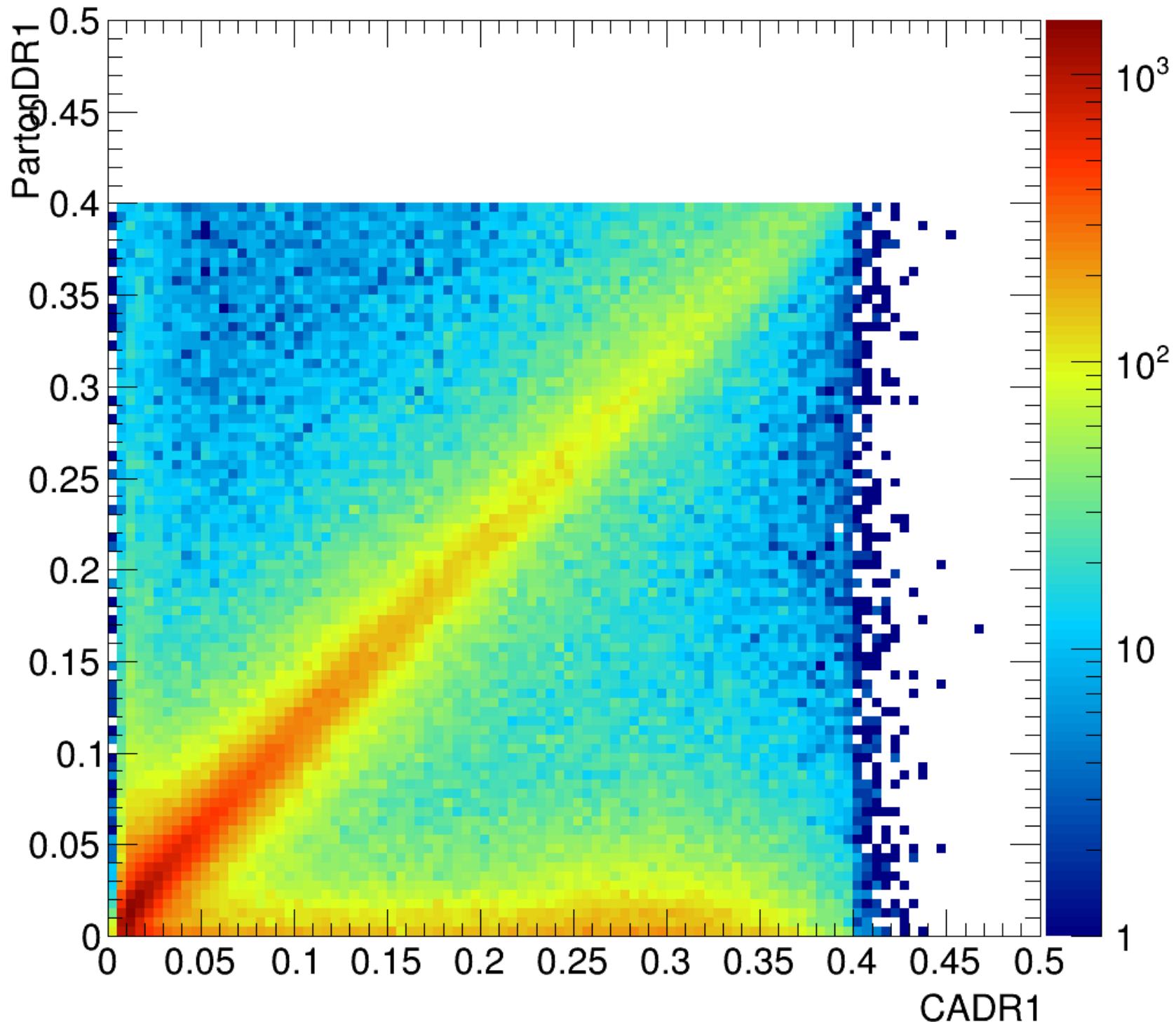
PYTHIA8 Pthat300 Jet pT>350 GeV(Z_{cut}, β)=(0.1,0.0)



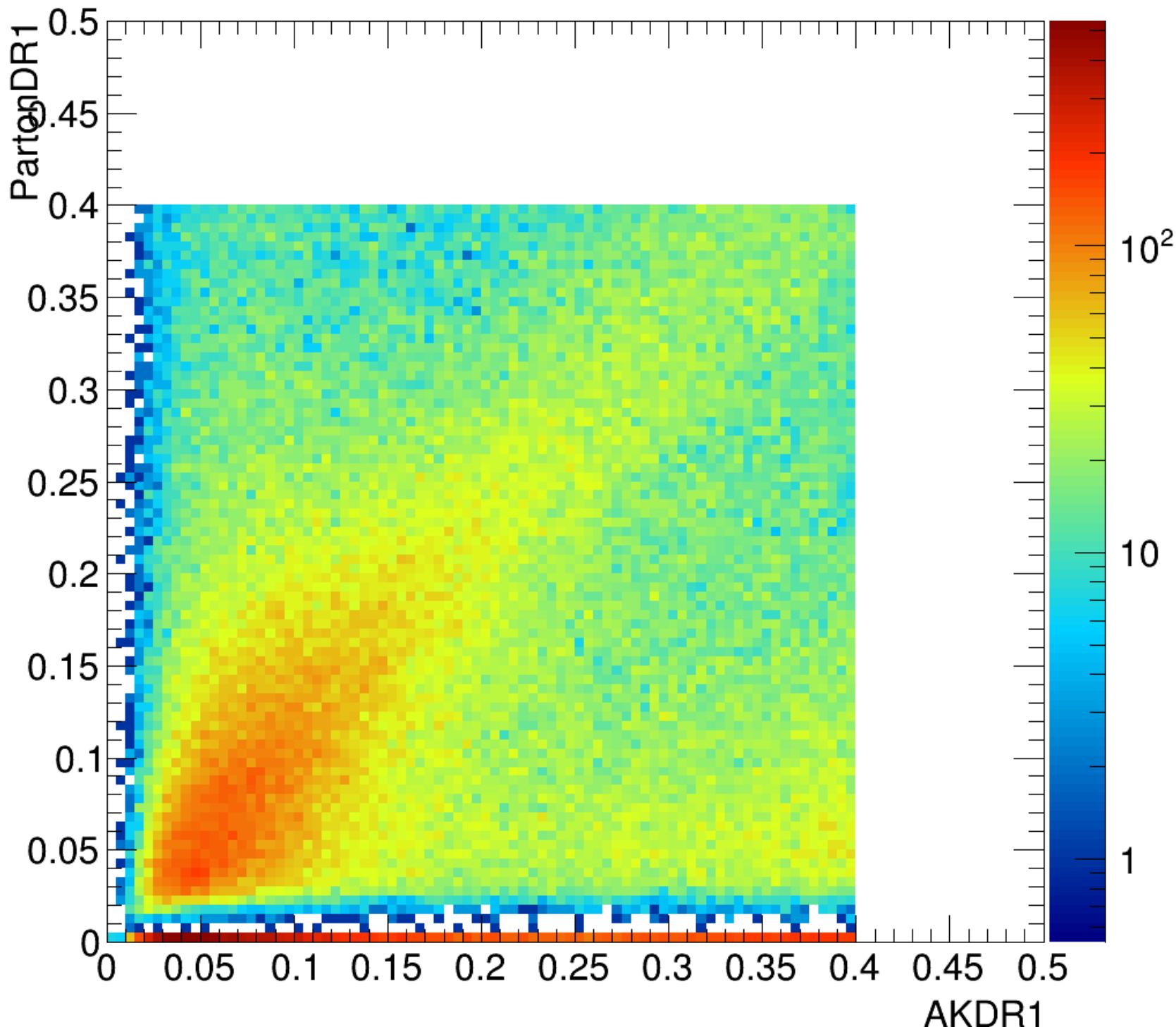
PYTHIA8 Pthat300 Jet pT>350 GeV(Z_{cut}, β)=(0.1,0.0)



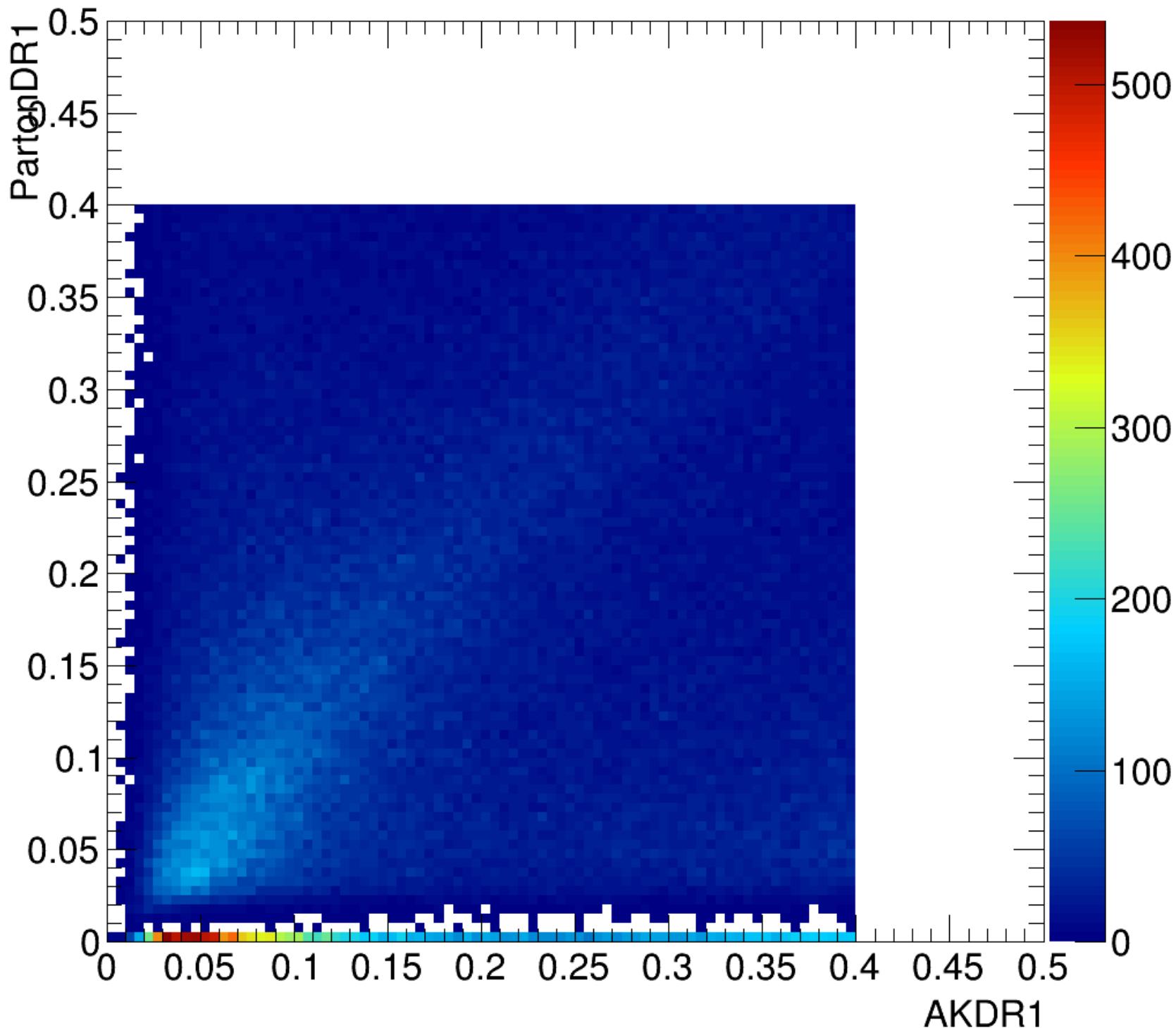
PYTHIA8 Pthat300 Jet pT>350 GeVCA Declustering



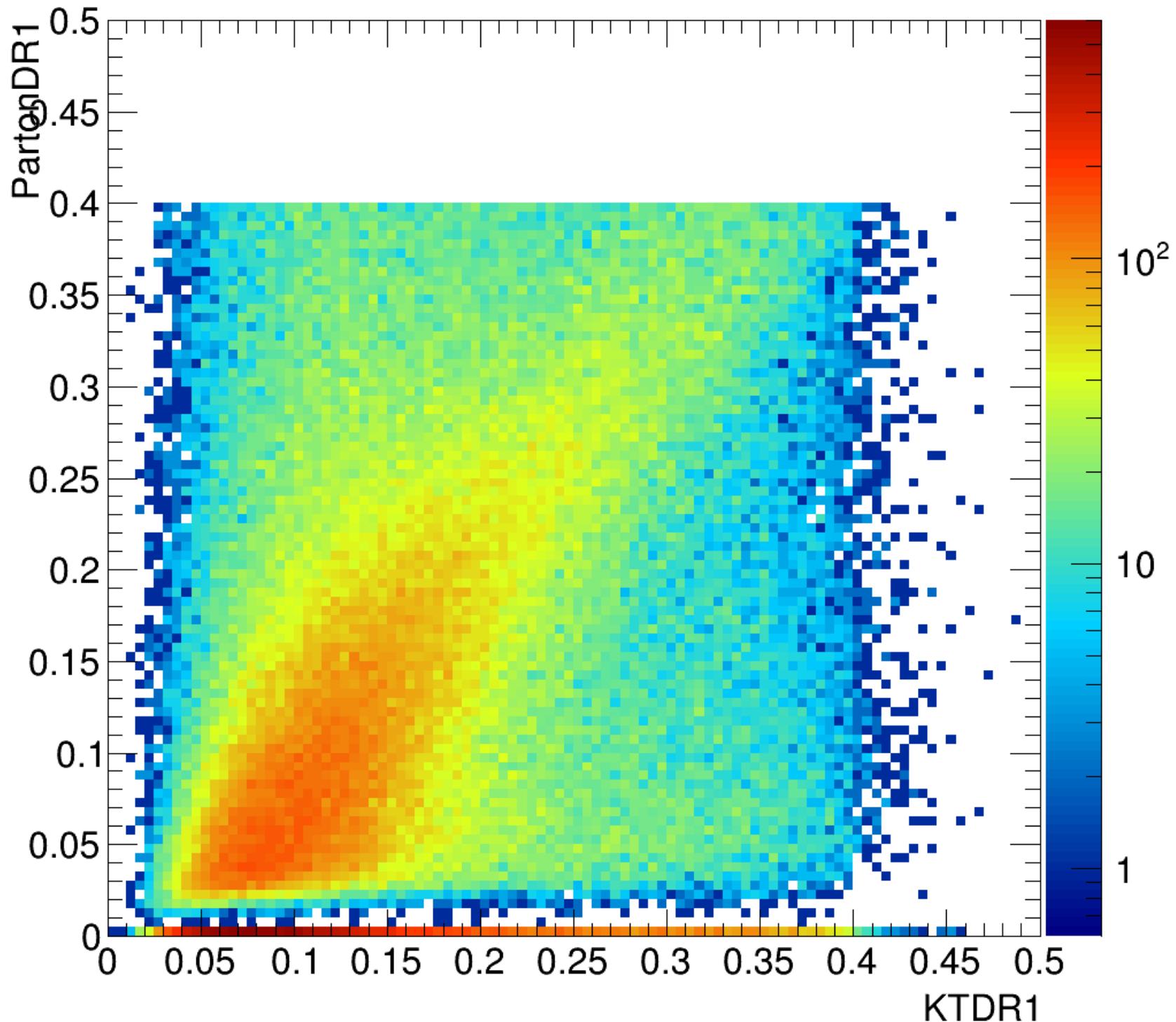
PYTHIA8 Pthat50 Jet pT>70 GeVAK Declustering



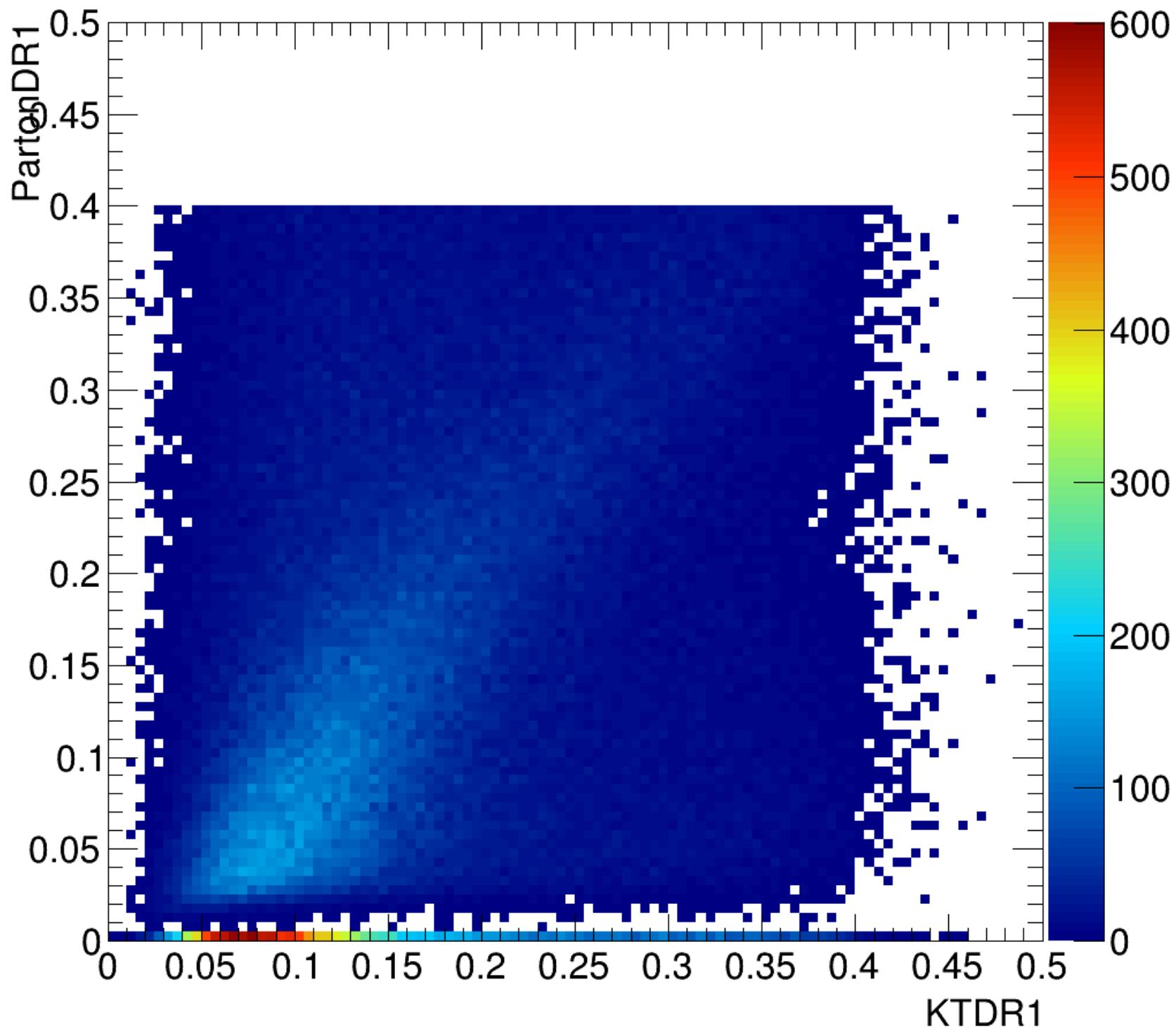
PYTHIA8 Pthat50 Jet pT>70 GeVAK Declustering



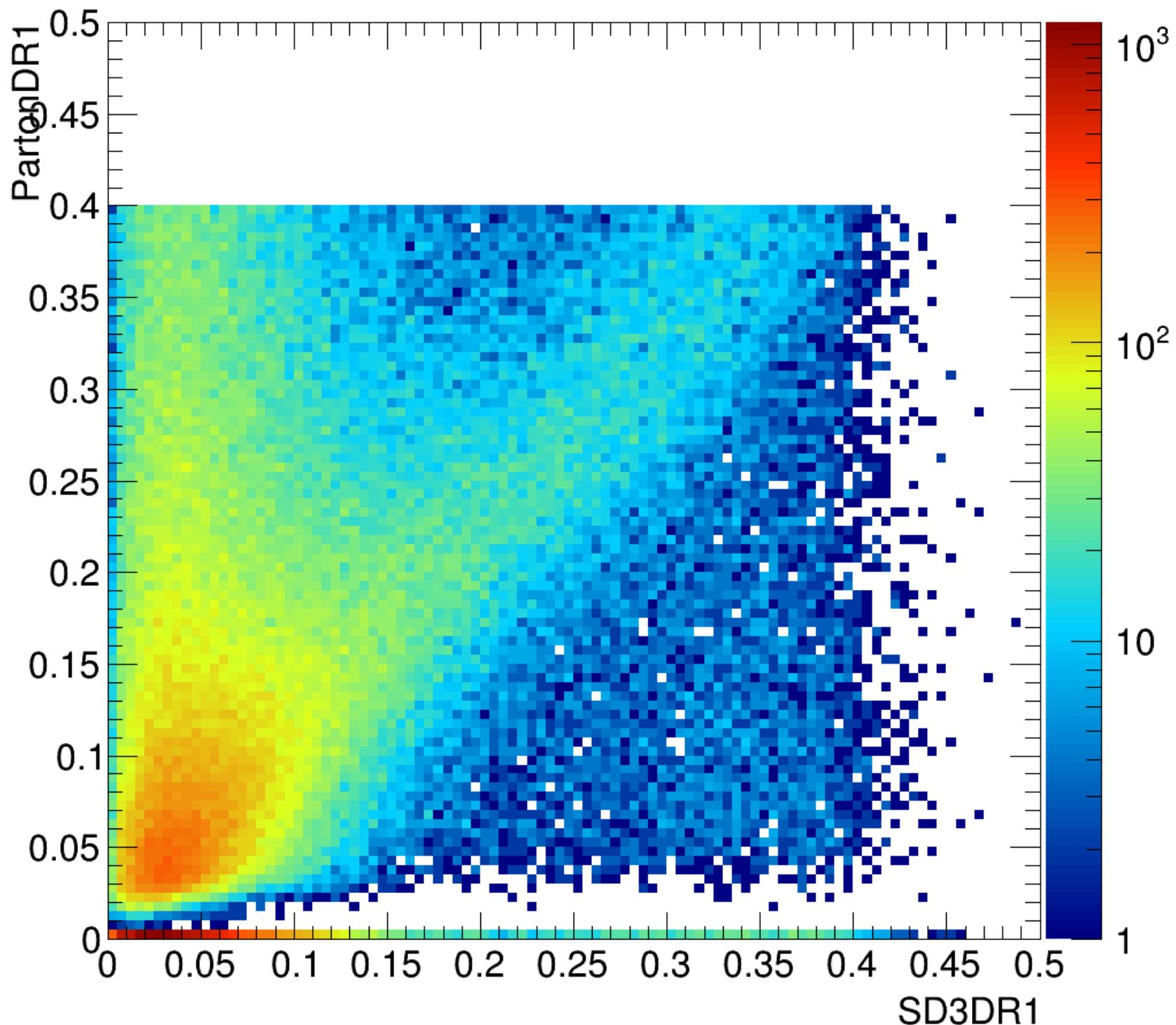
PYTHIA8 Pthat50 Jet pT>70 GeVKT Declustering



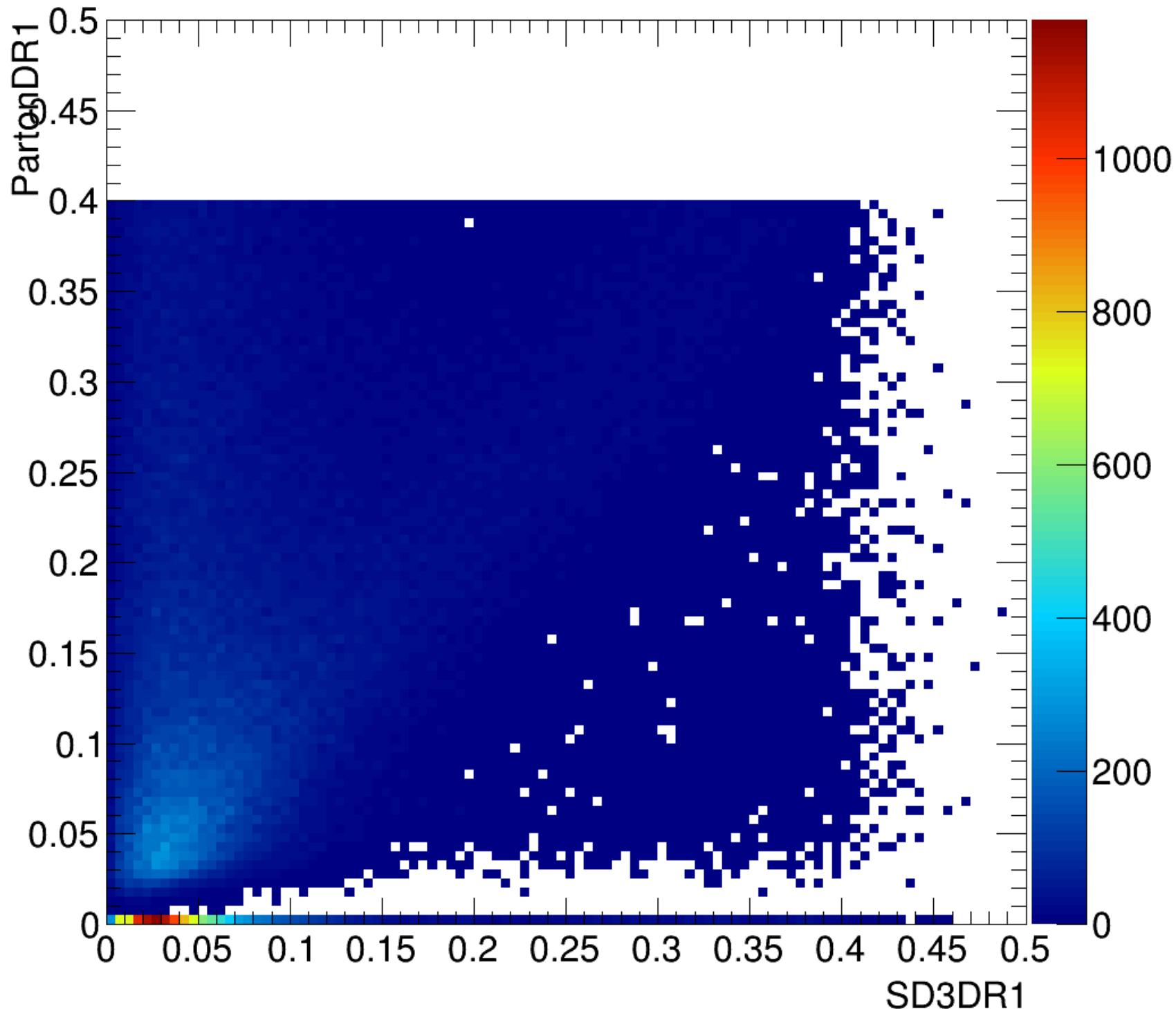
PYTHIA8 Pthat50 Jet pT>70 GeVKT Declustering



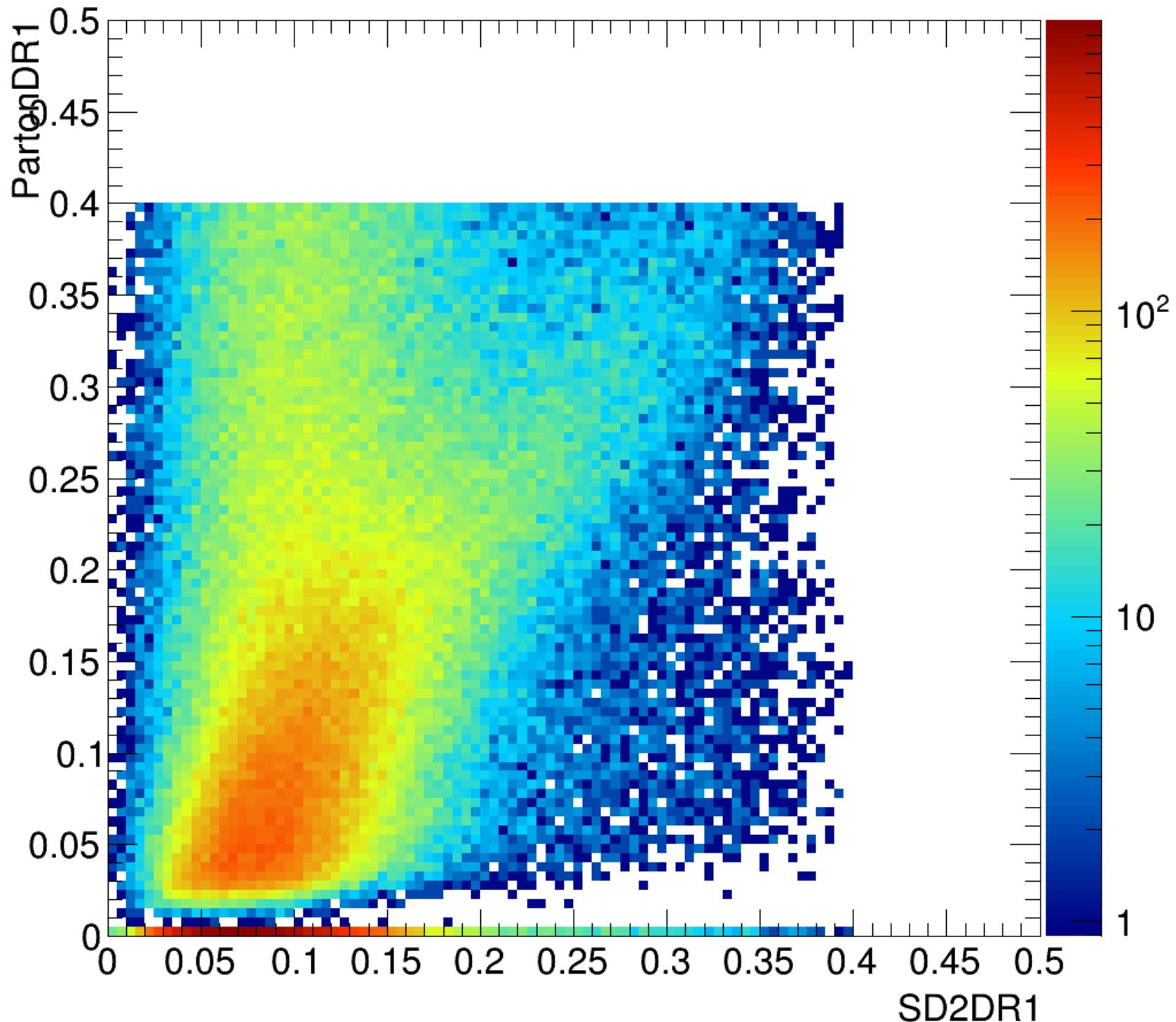
PYTHIA8 Pthat50 Jet pT>70 GeV(Z_{cut}, β)=(0.25,0.0)



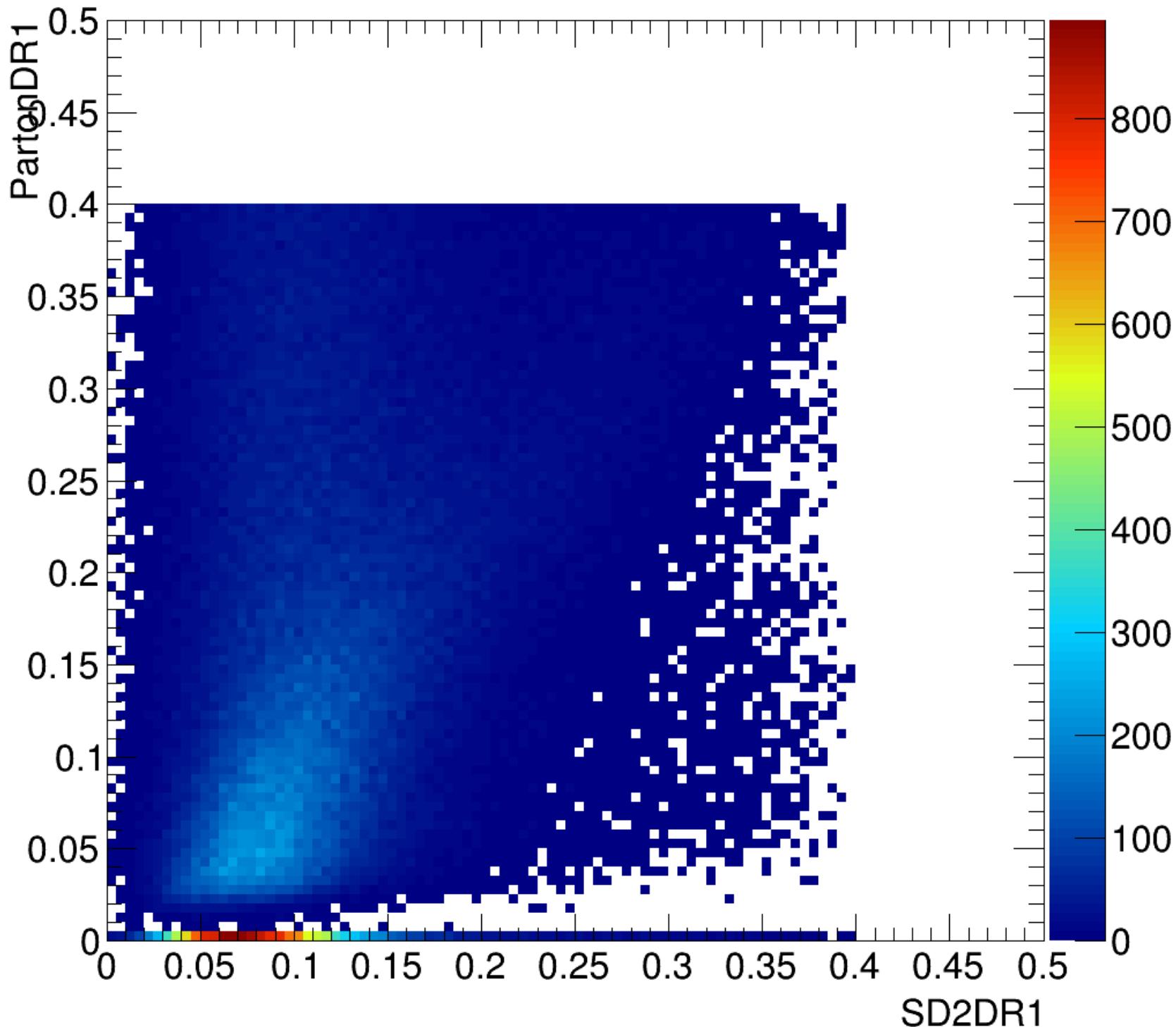
PYTHIA8 Pthat50 Jet pT>70 GeV(Z_{cut}, β)=(0.25,0.0)



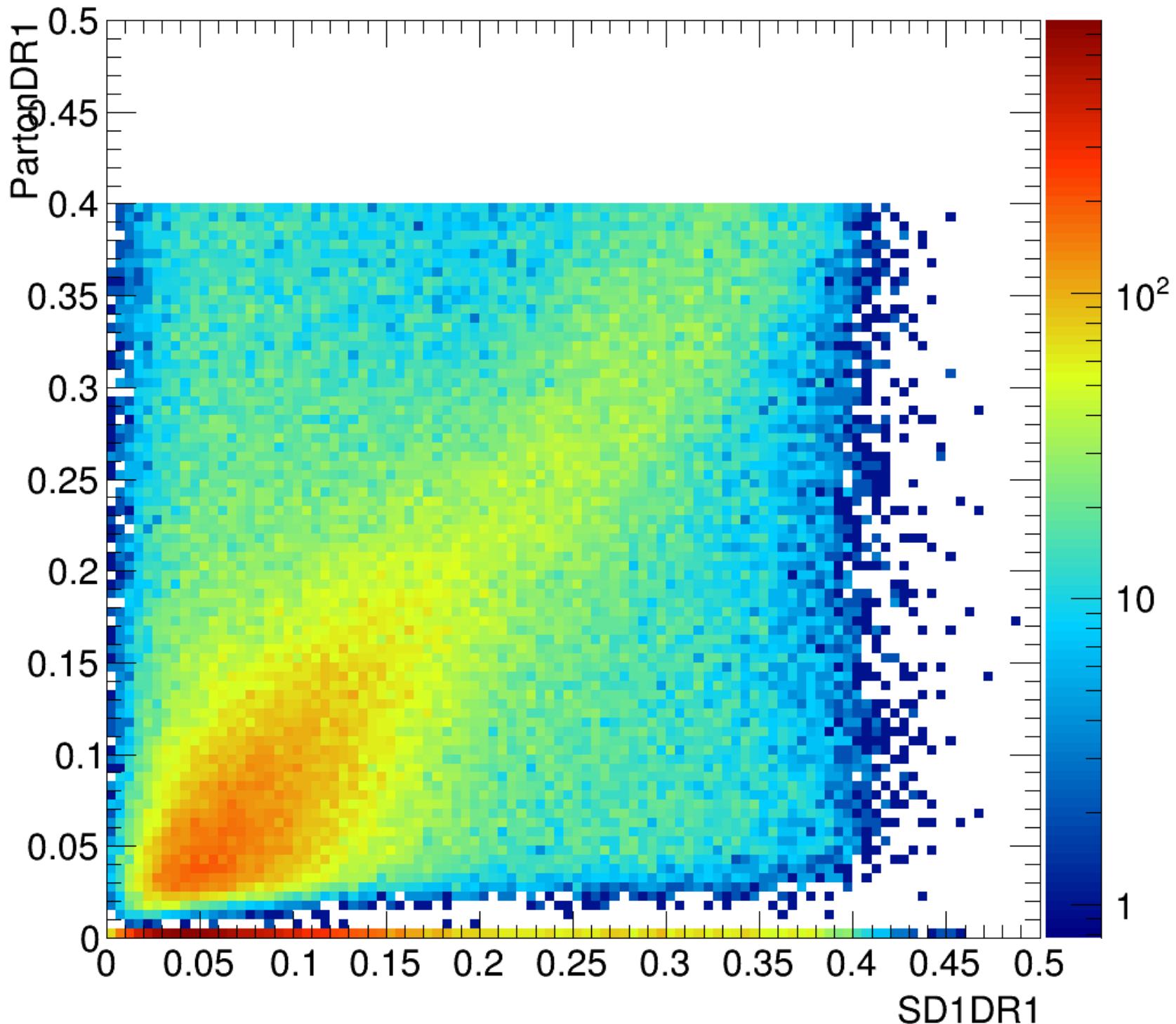
PYTHIA8 Pthat50 Jet pT>70 GeV(Z_{cut}, β)=(0.5,1.5)



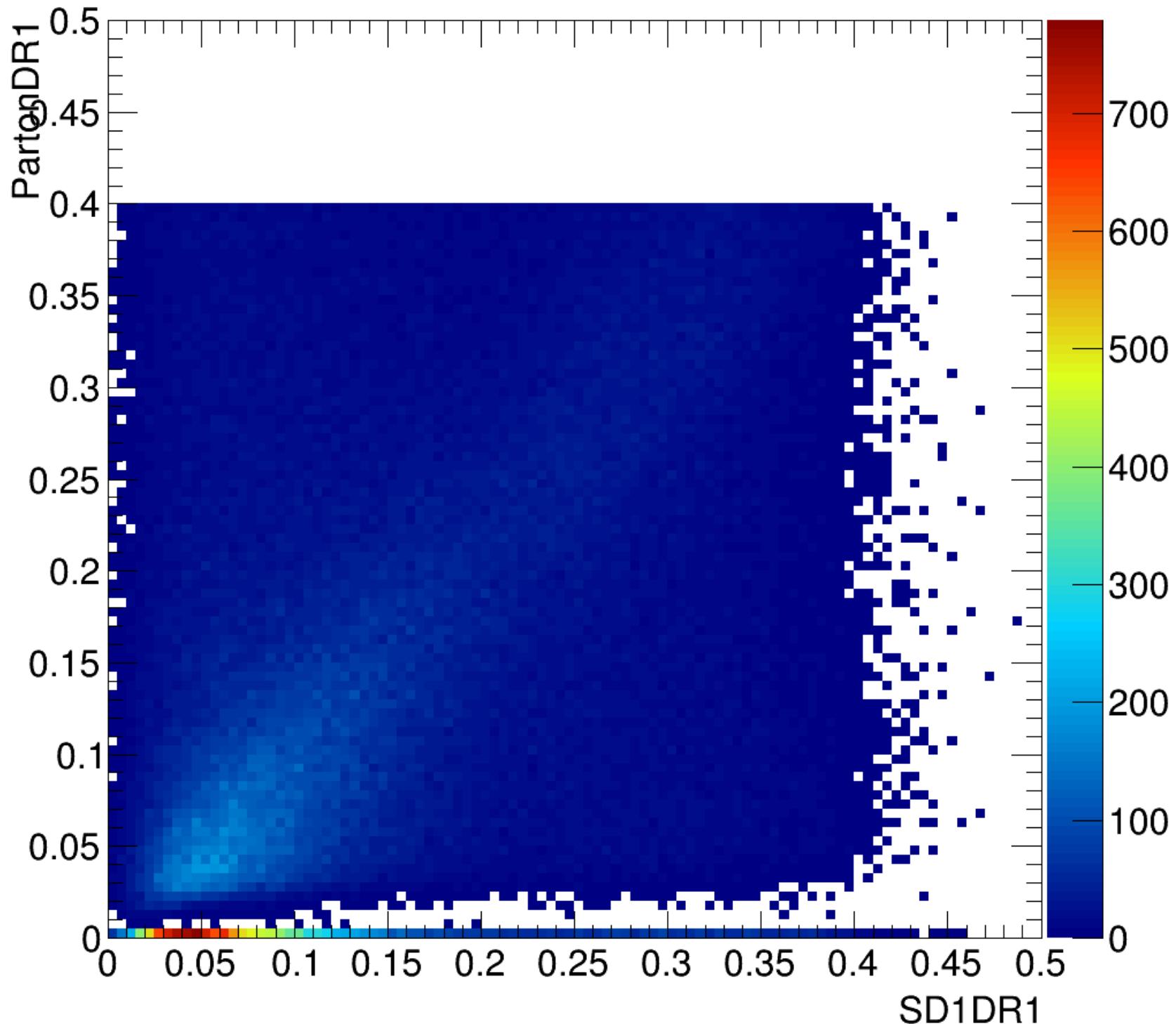
PYTHIA8 Pthat50 Jet pT>70 GeV(Z_{cut}, β)=(0.5,1.5)



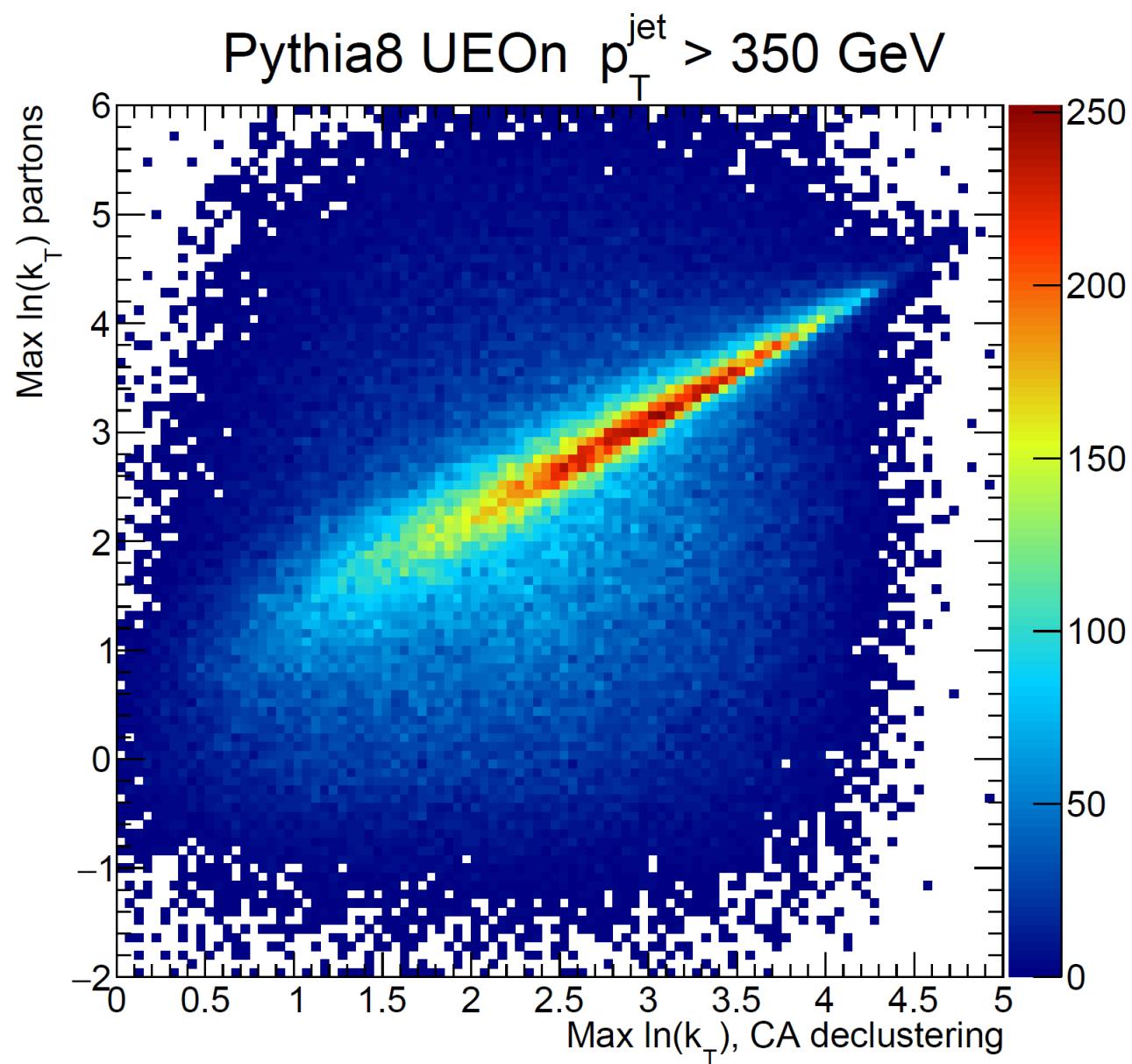
PYTHIA8 Pthat50 Jet pT>70 GeV(Z_{cut}, β)=(0.1,0.0)



PYTHIA8 Pthat50 Jet pT>70 GeV(Z_{cut}, β)=(0.1,0.0)

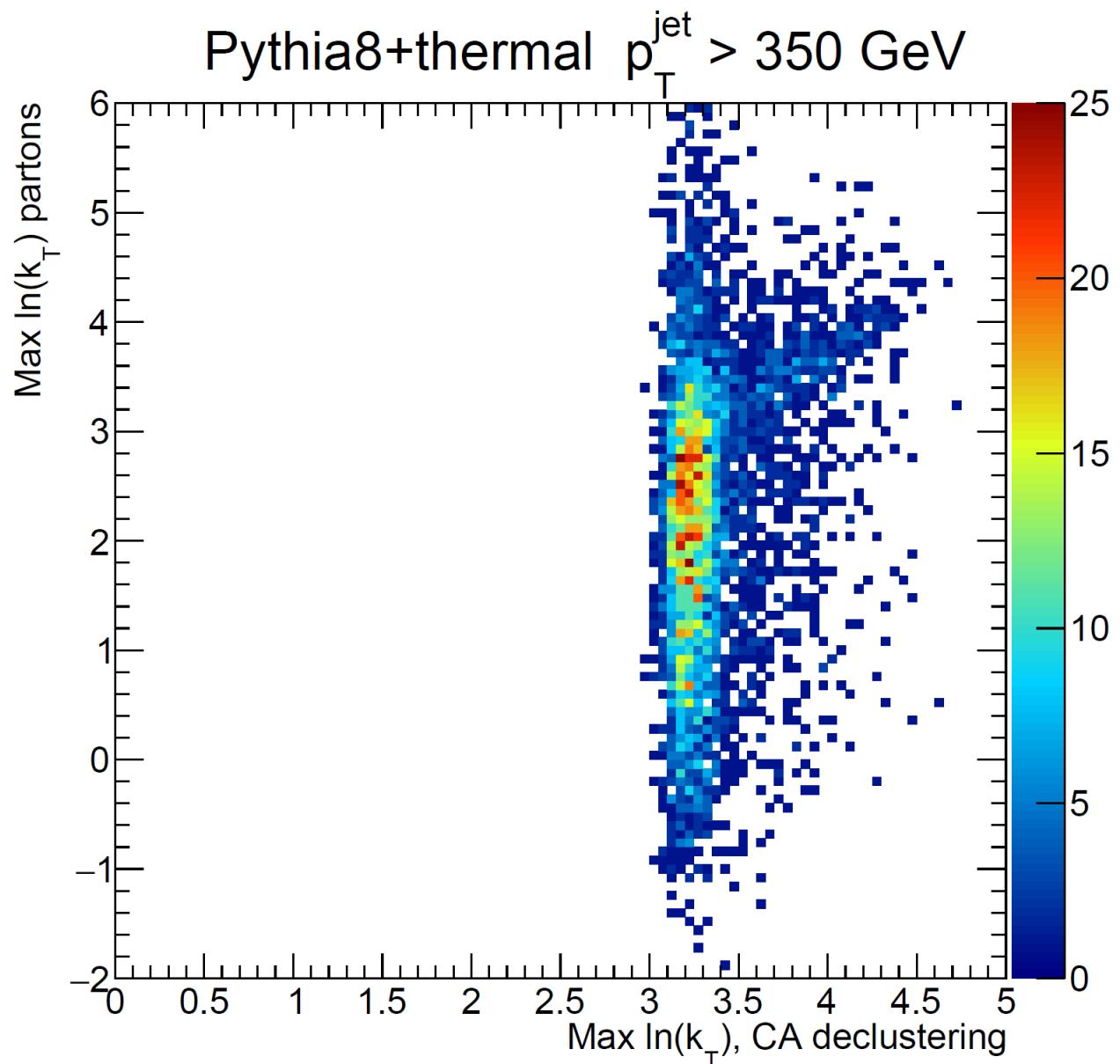


Jet (CA) PYTHIA8 pThat300



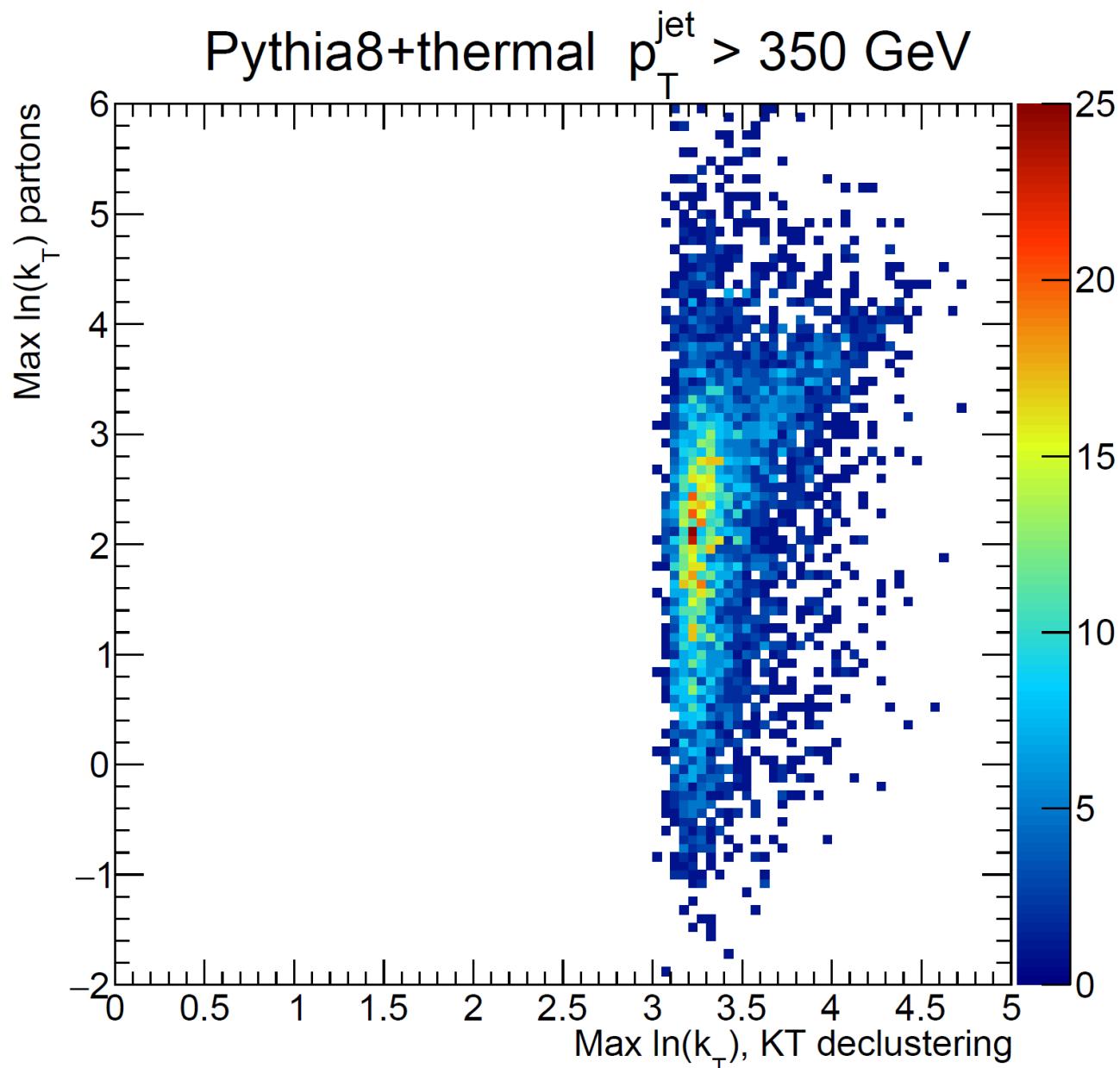
Jet (CA) PYTHIA+TermaL Background (PbPb 5 TeV 0-10%)

Without background sub



Jet (KT) PYTHIA+TermaL Background (PbPb 5 TeV 0-10%)

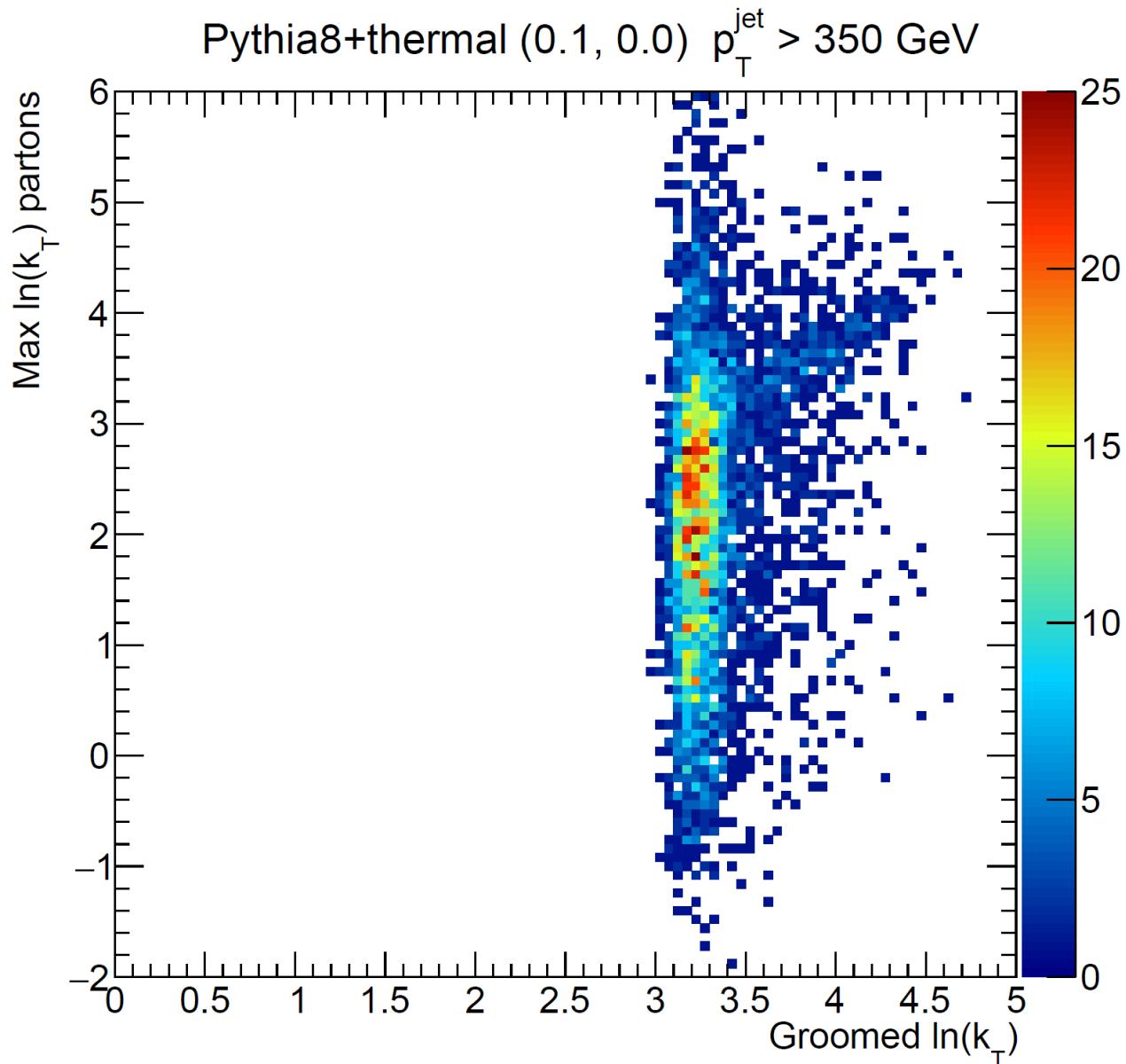
Without background sub



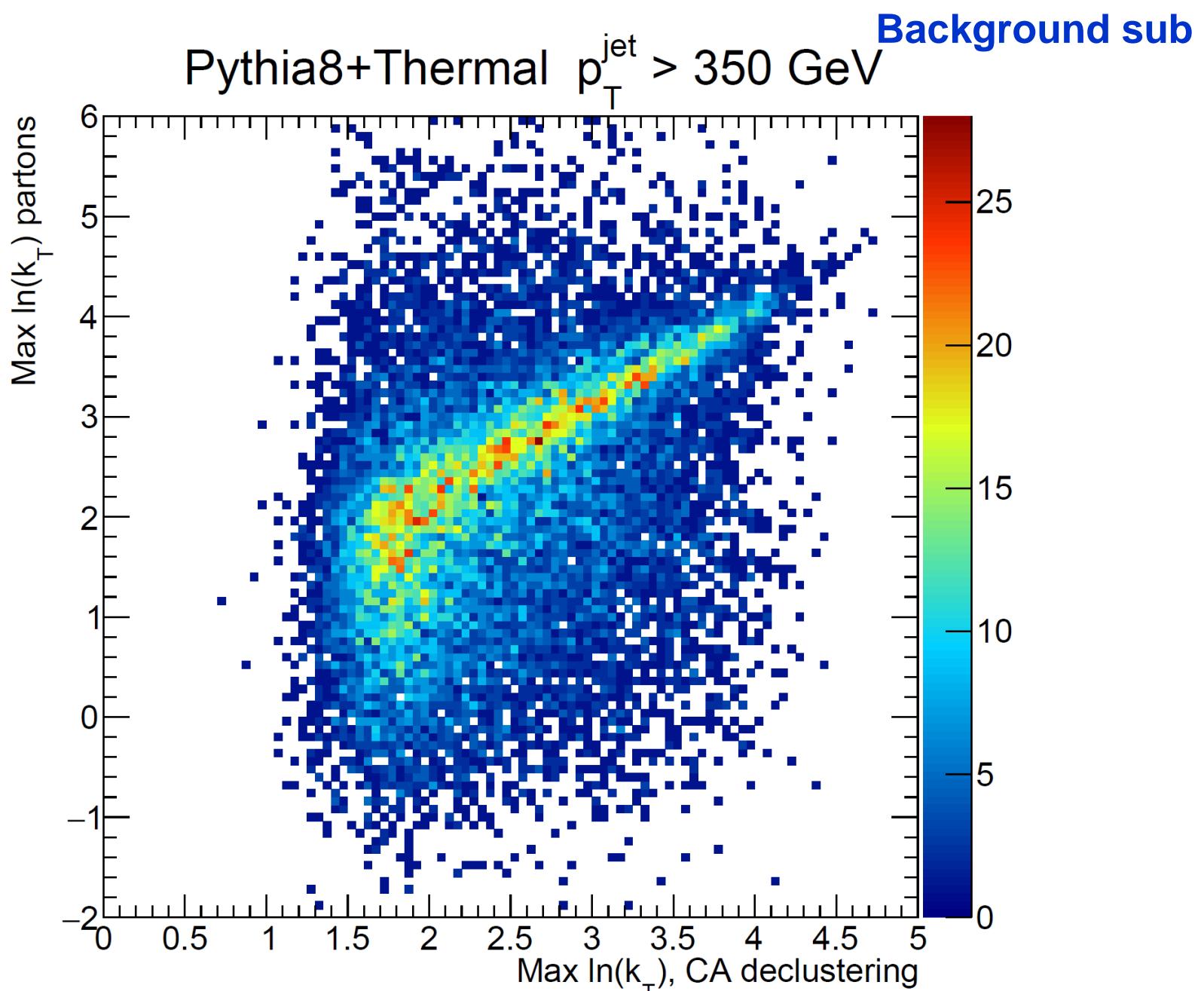
Groomed Jet (CA) PYTHIA+TermaL Background (PbPb 5 TeV 0-10%)

Zcut (0.1,0)

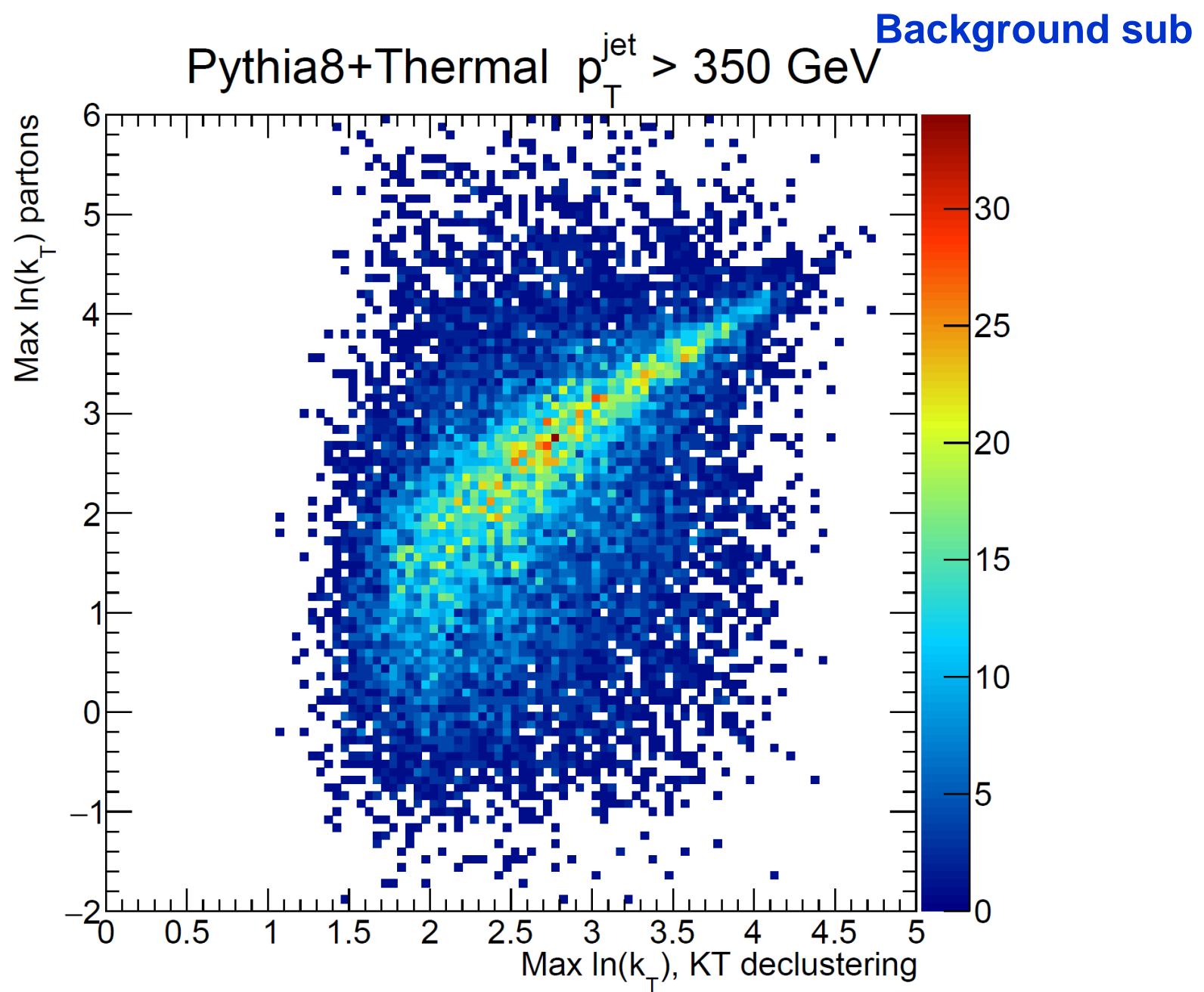
Without background sub



Jet (CA) PYTHIA+TermaL Background (PbPb 5 TeV 0-10%)



Jet (KT) PYTHIA+TermaL Background (PbPb 5 TeV 0-10%)

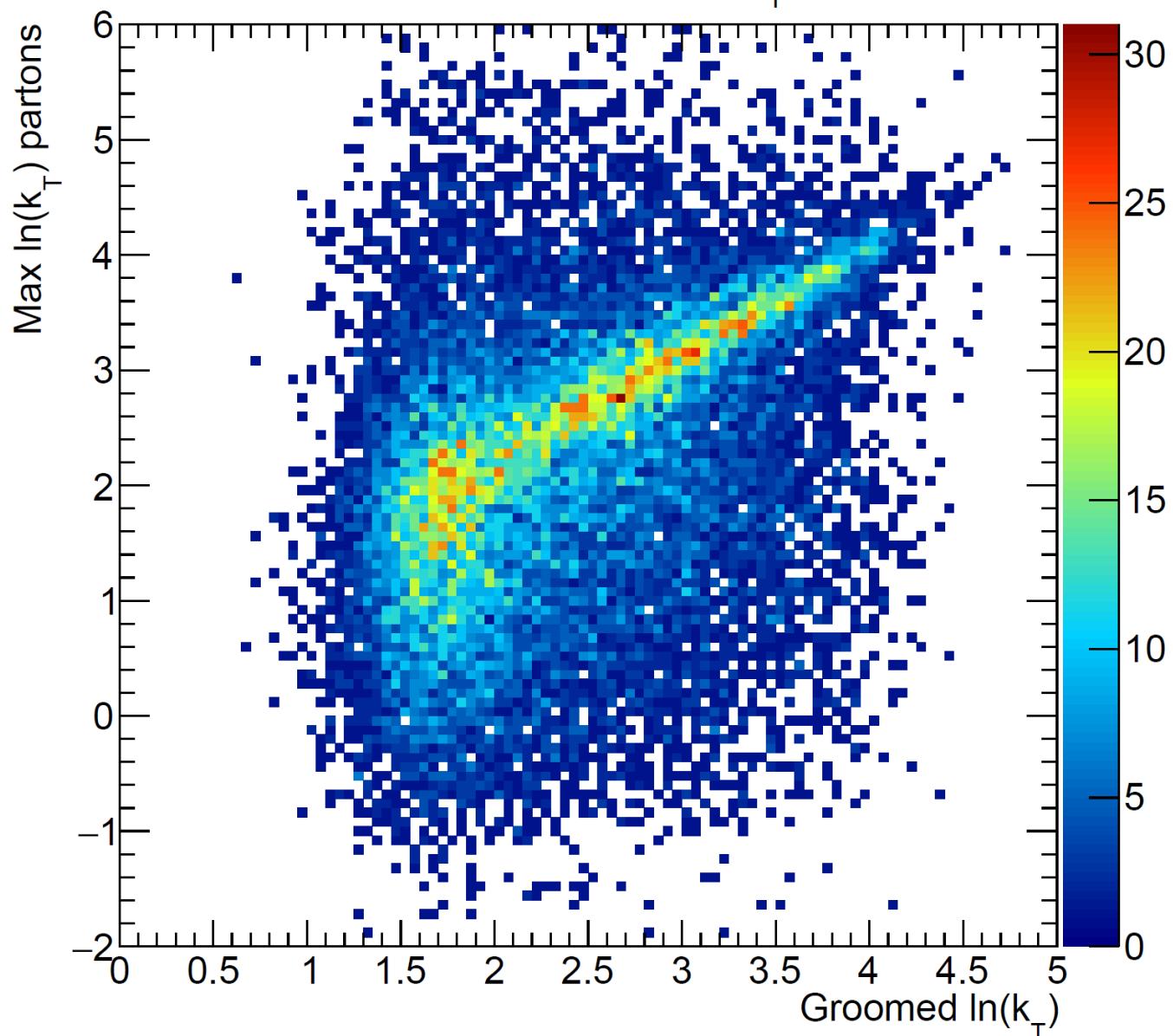


Groomed Jet (CA) PYTHIA+Termal Background (PbPb 5 TeV 0-10%)

Zcut (0.1,0)

Pythia8+Thermal (0.1, 0.0) $p_T^{\text{jet}} > 350 \text{ GeV}$

Background sub

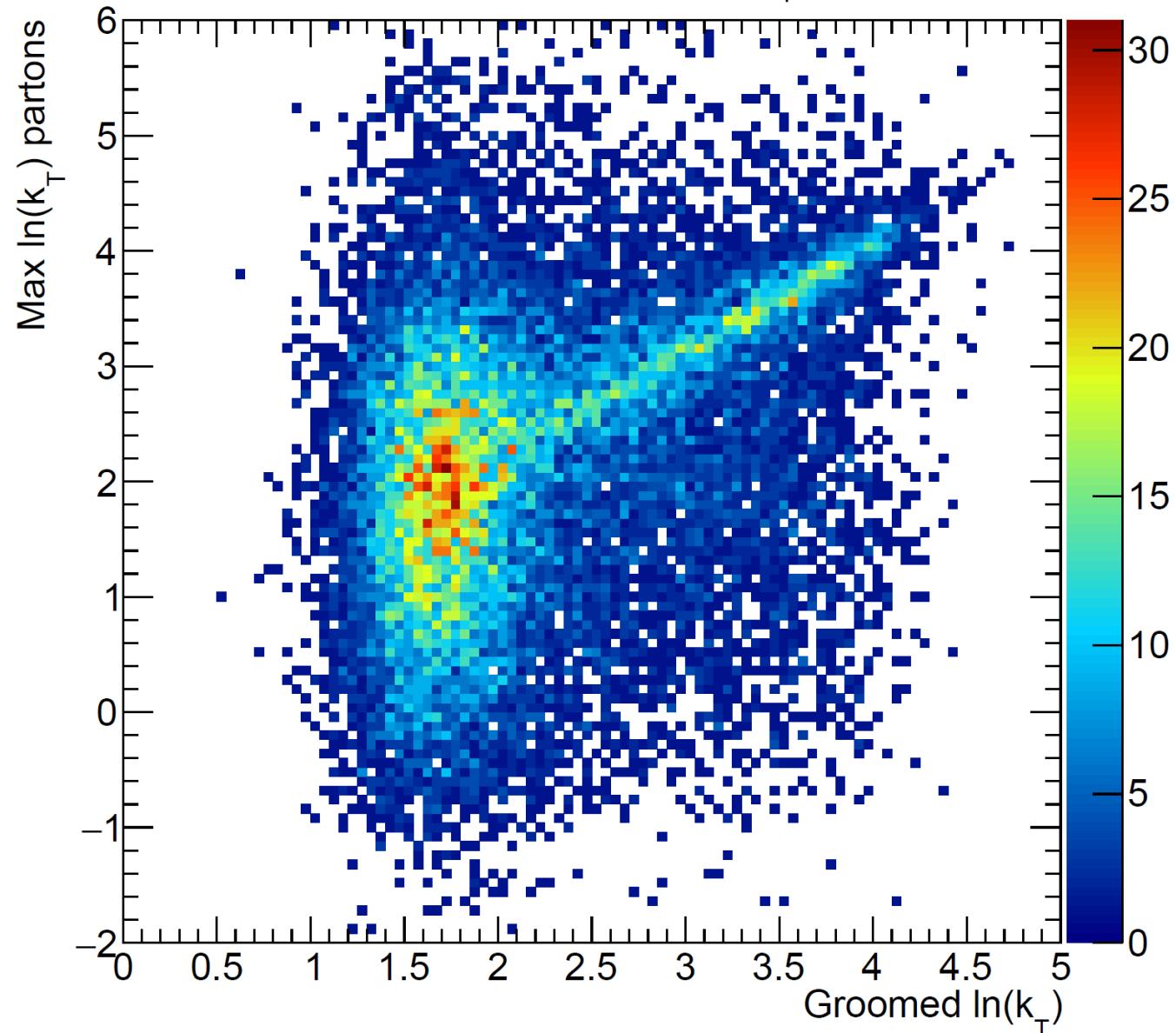


Groomed Jet (CA) PYTHIA+Termal Background (PbPb 5 TeV 0-10%)

Zcut (0.25,0.0)

Pythia8+Thermal (0.25, 0.0) $p_T^{\text{jet}} > 350 \text{ GeV}$

Background sub

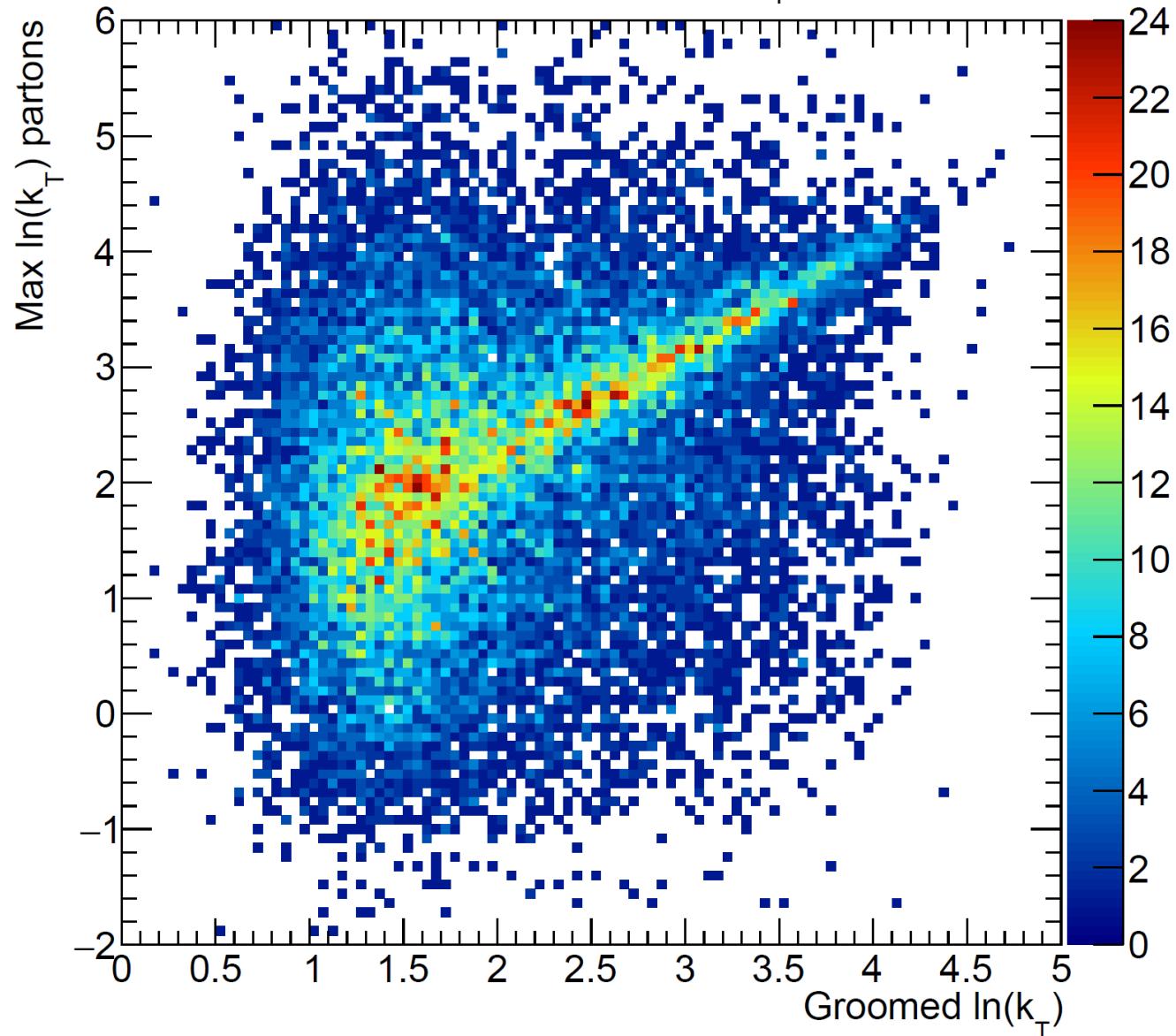


Groomed Jet (CA) PYTHIA+Termal Background (PbPb 5 TeV 0-10%)

Zcut (0.5,1.5)

Pythia8+Thermal (0.5, 1.5) $p_T^{\text{jet}} > 350 \text{ GeV}$

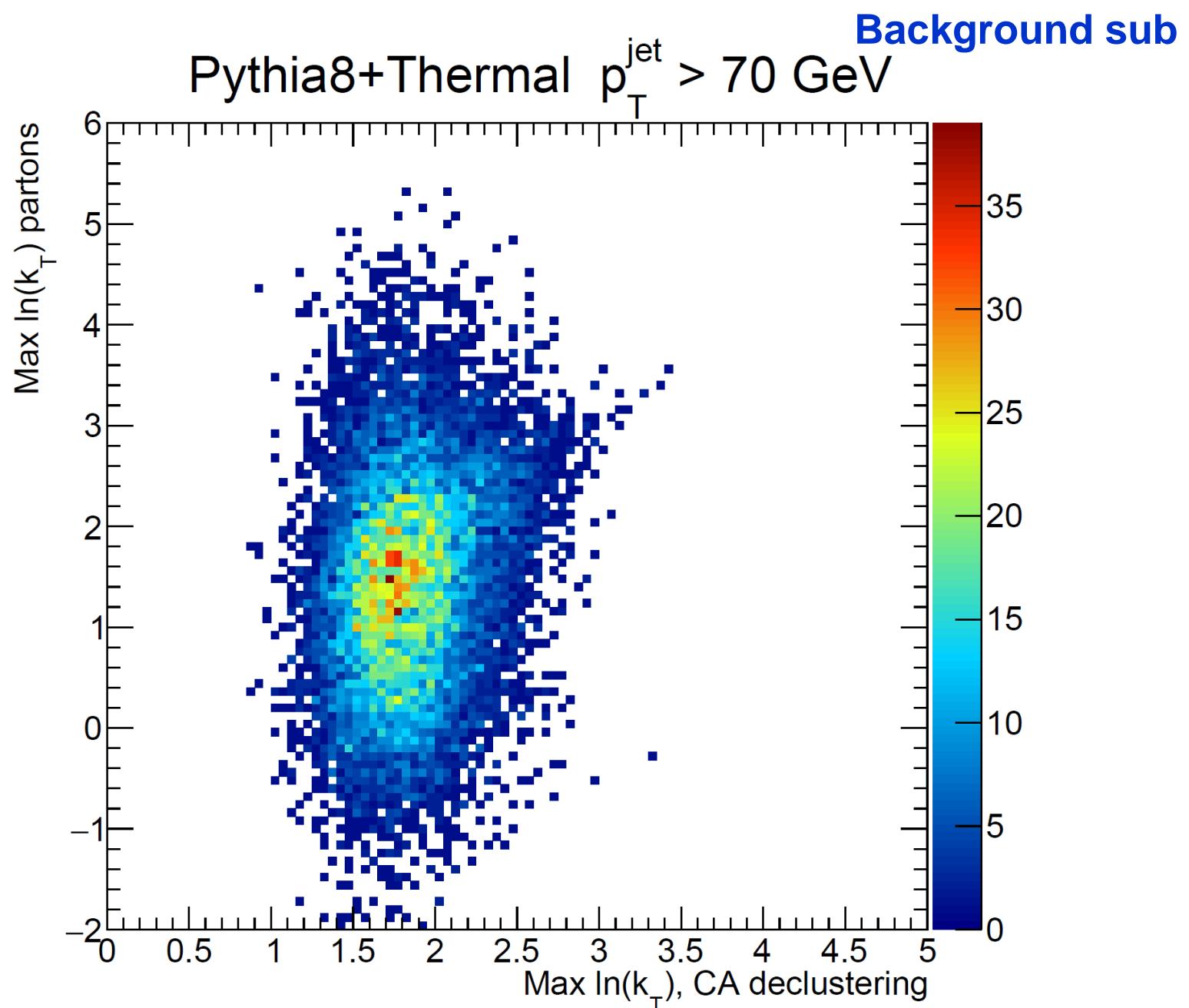
Background sub



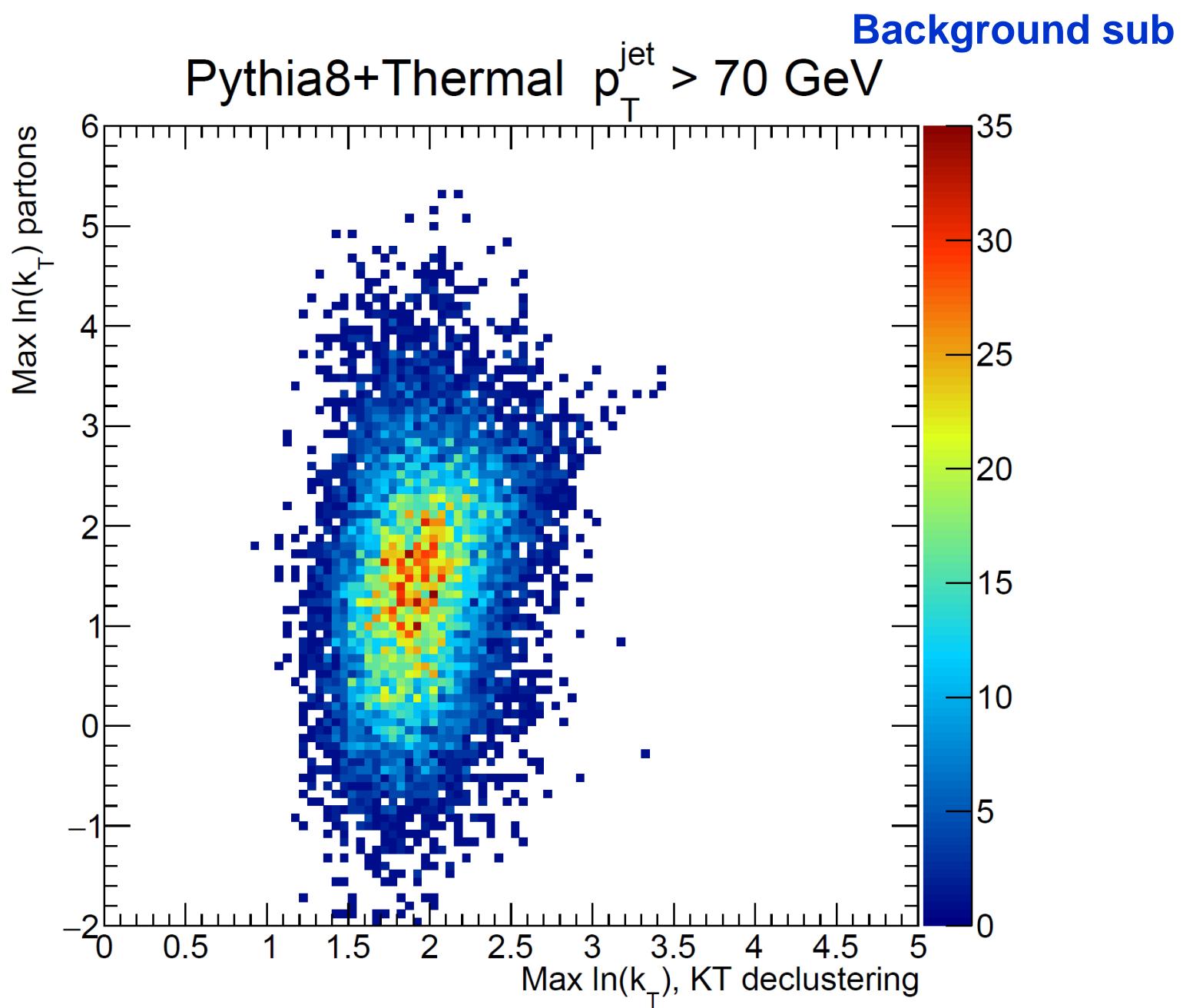
Low pT Jet in thermal background



Jet (CA) PYTHIA+TermaL Background (PbPb 5 TeV 0-10%) Low pT jet

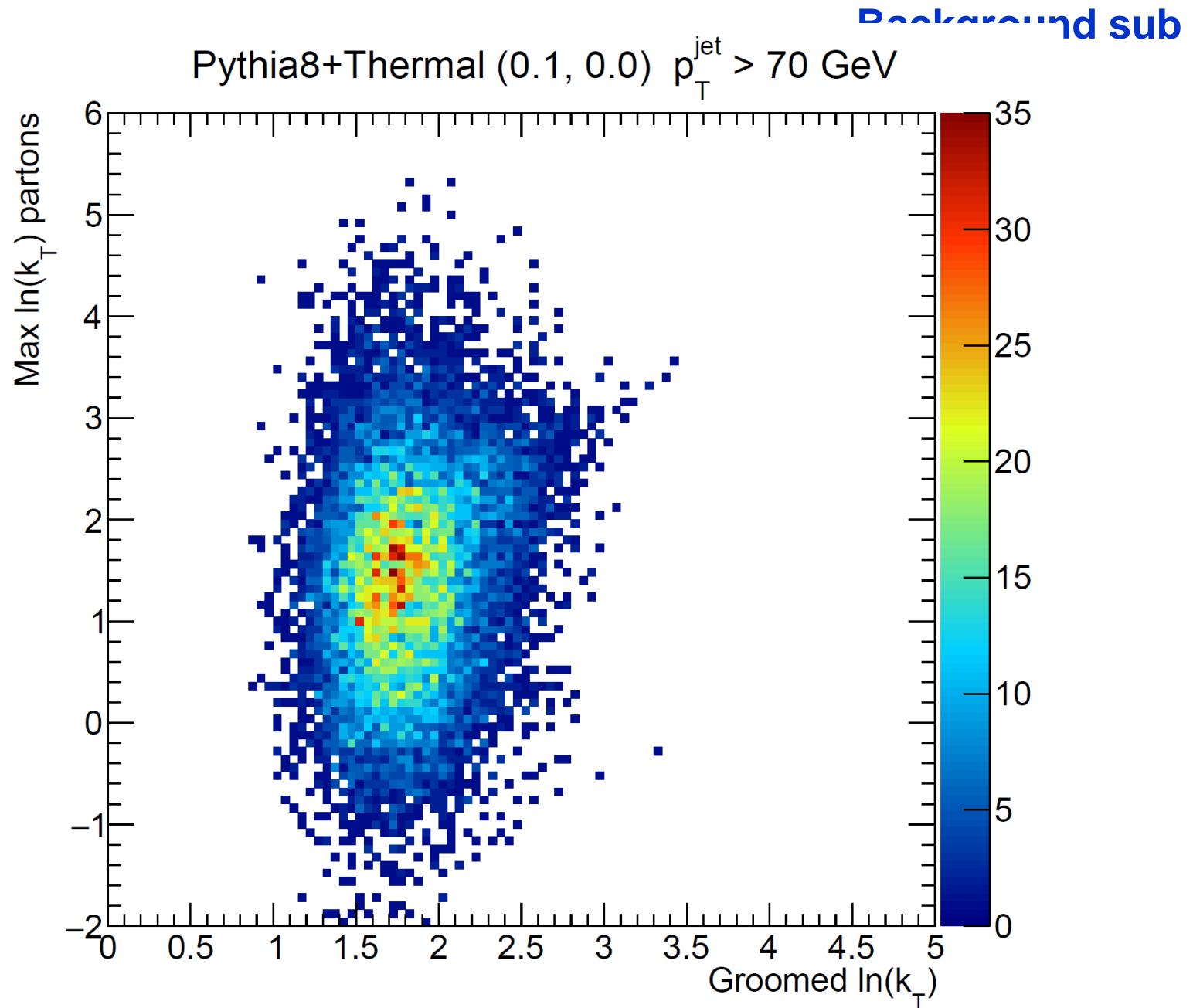


Jet (KT) PYTHIA+TermaL Background (PbPb 5 TeV 0-10%) Low pT Jet



Groomed Jet (CA) PYTHIA+Termal Background (PbPb 5 TeV 0-10%)

Zcut (0.1,0)

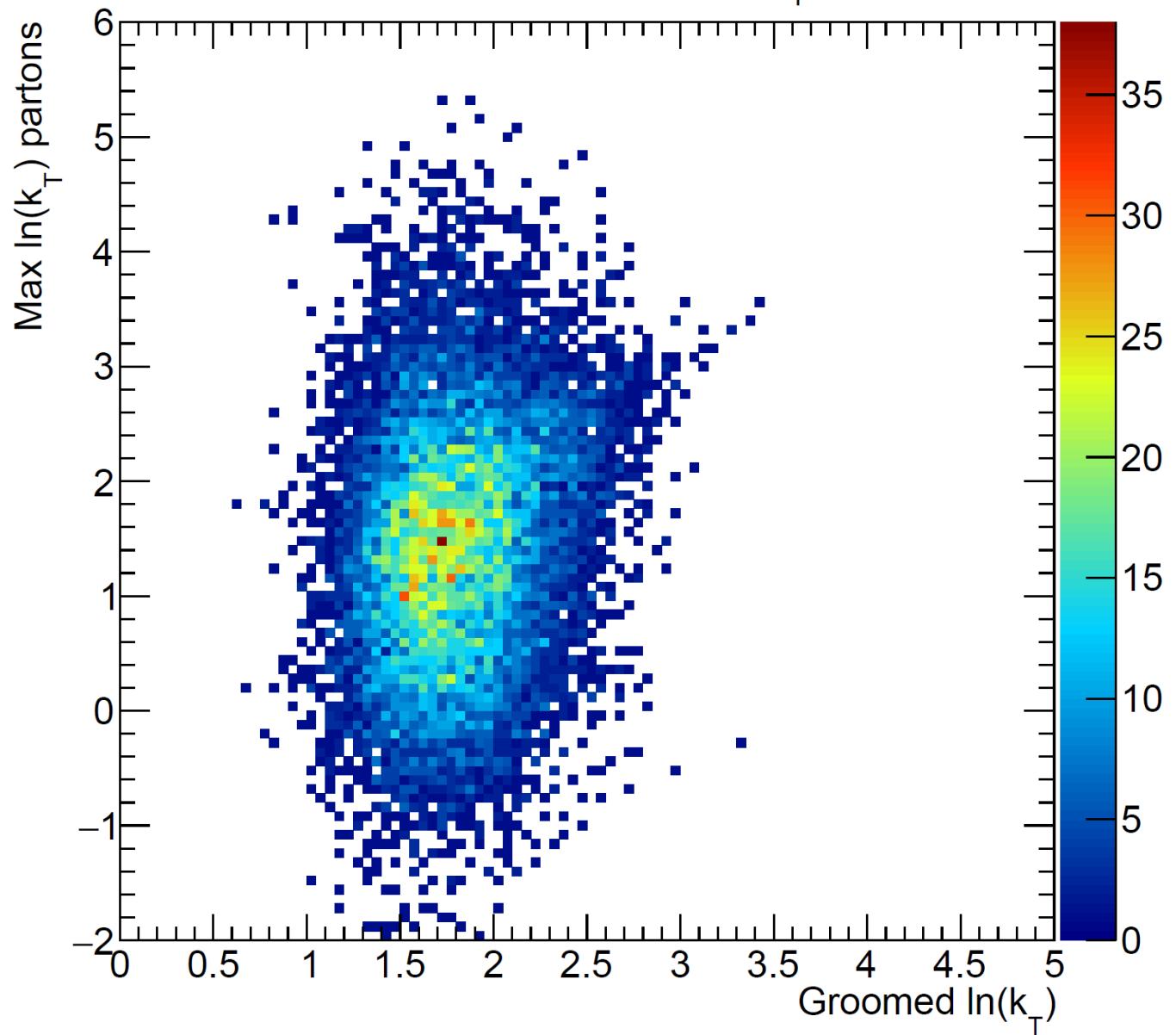


Groomed Jet (CA) PYTHIA+TermaL Background (PbPb 5 TeV 0-10%) Low pT Jet

Zcut (0.25, 0.0)

Pythia8+Thermal (0.25, 0.0) $p_T^{\text{jet}} > 70 \text{ GeV}$

Background sub

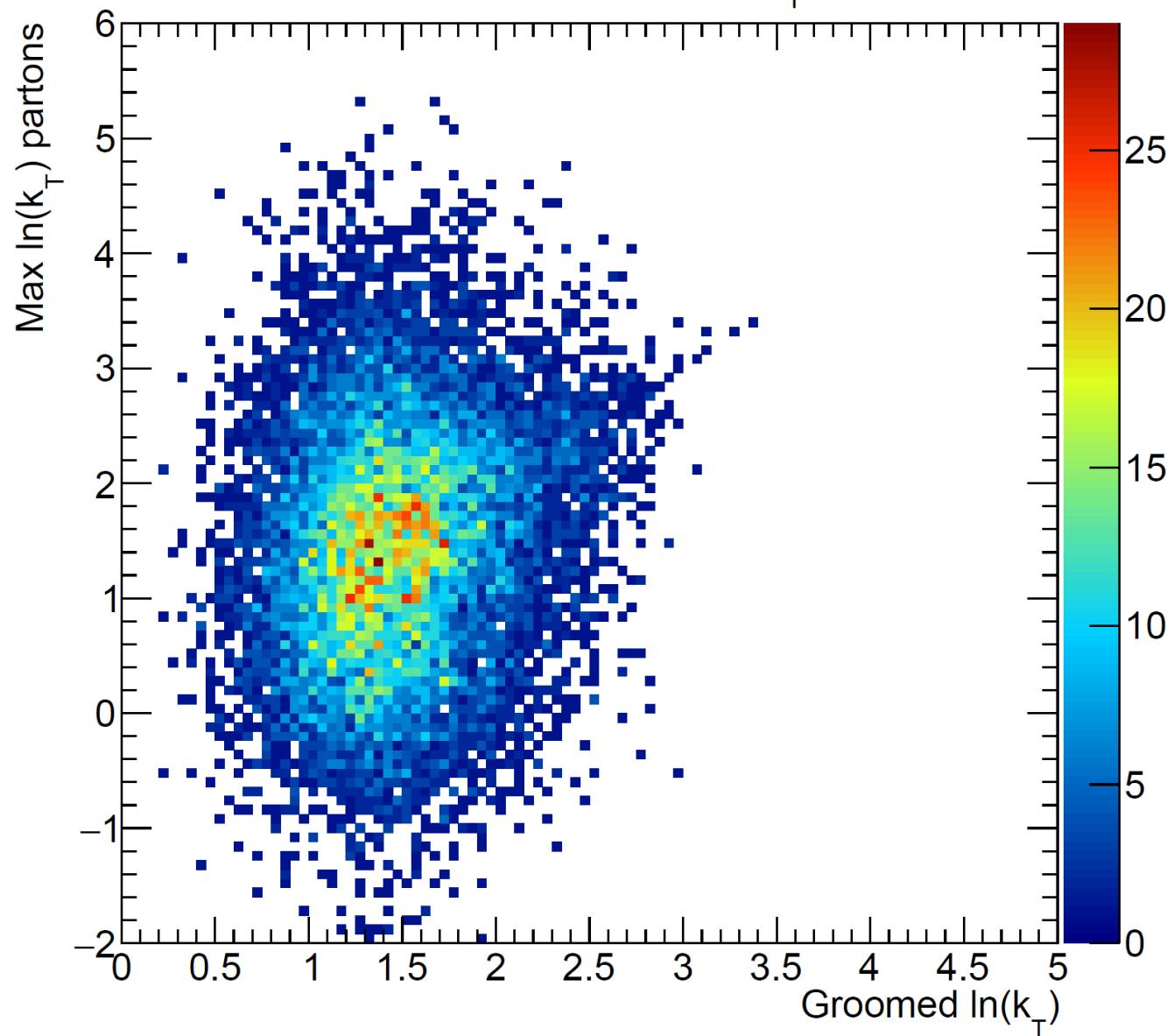


Groomed Jet (CA) PYTHIA+Termal Background (PbPb 5 TeV 0-10%)

Zcut (0.5, 1.5)

Pythia8+Thermal (0.5, 1.5) $p_T^{\text{jet}} > 70 \text{ GeV}$

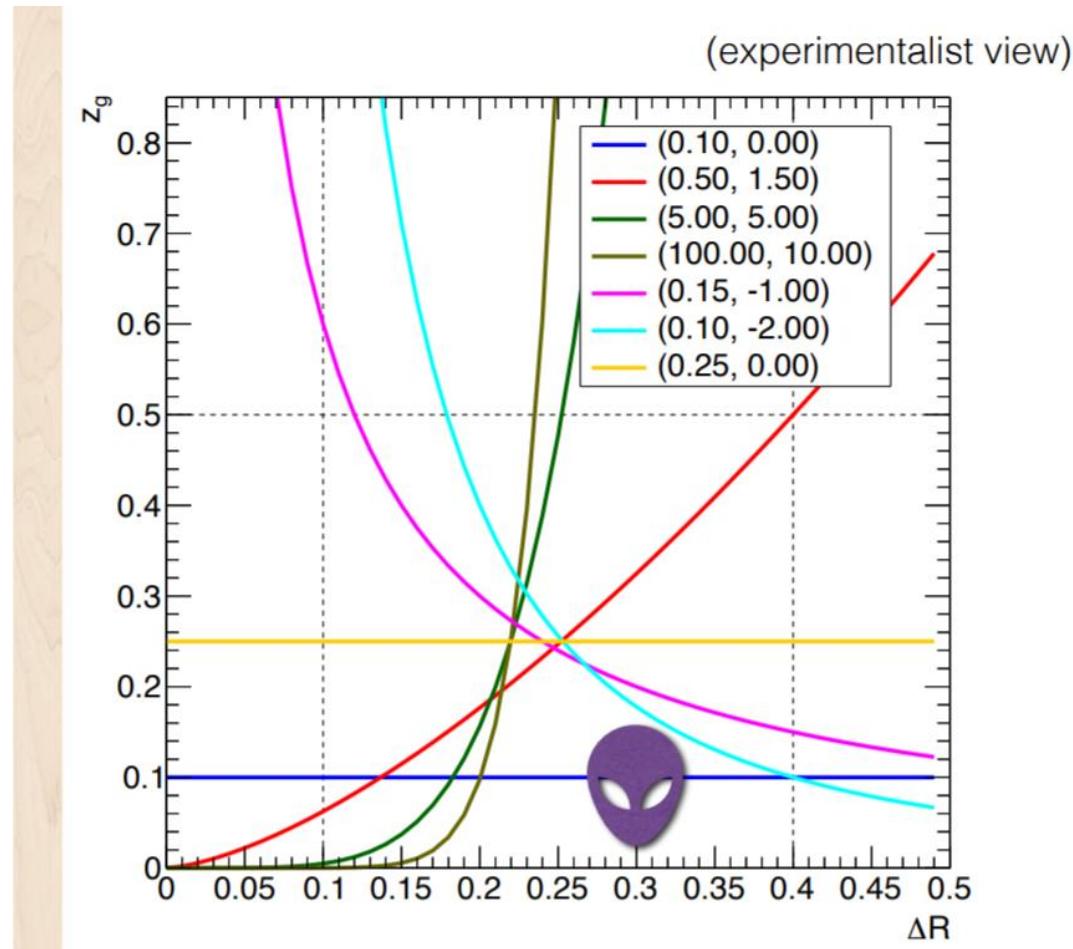
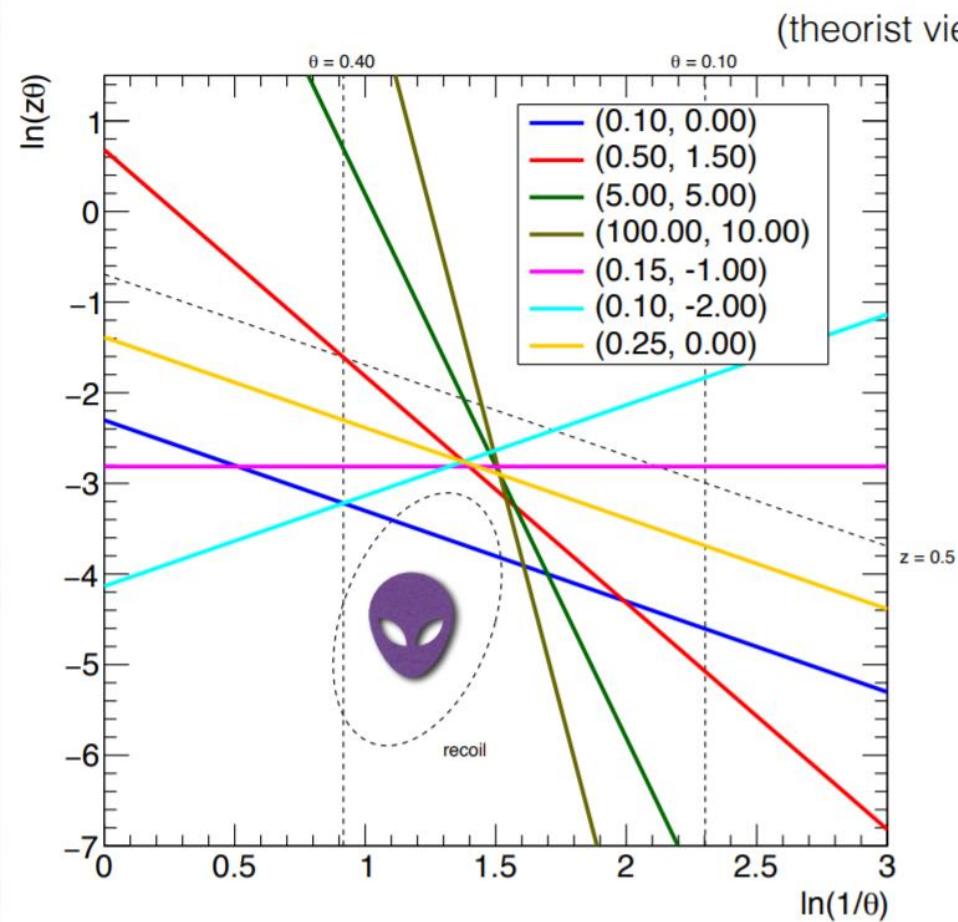
Background sub



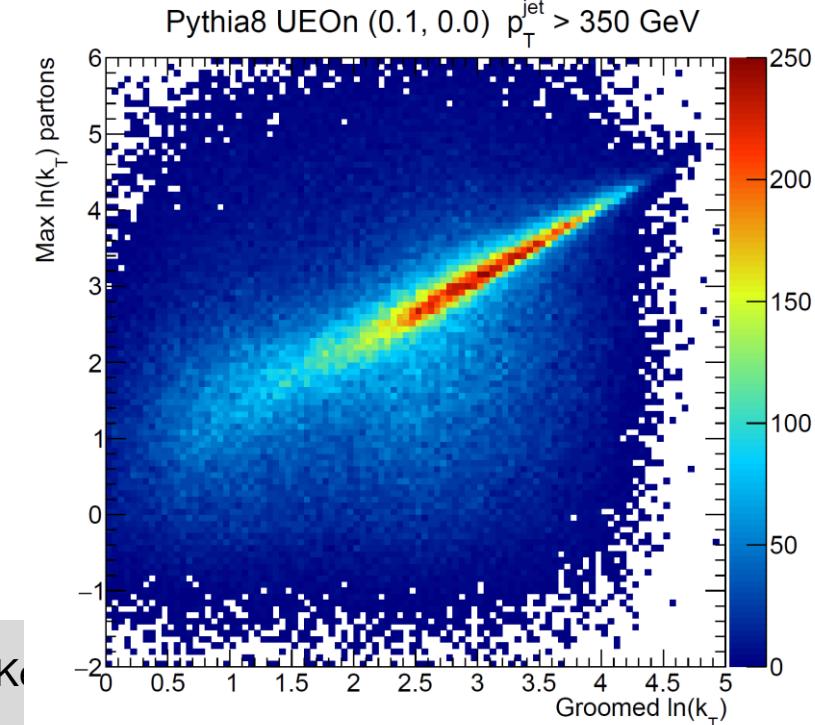
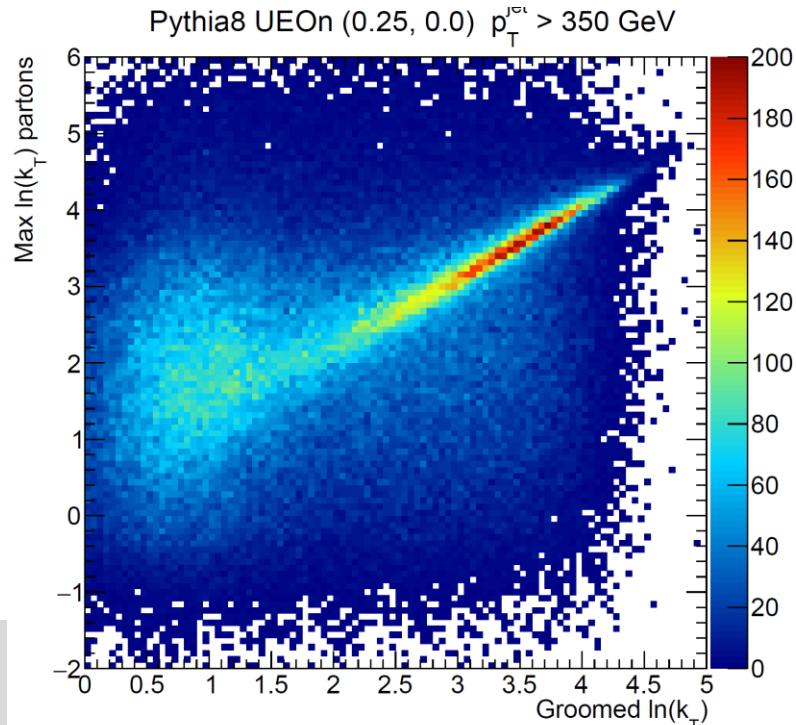
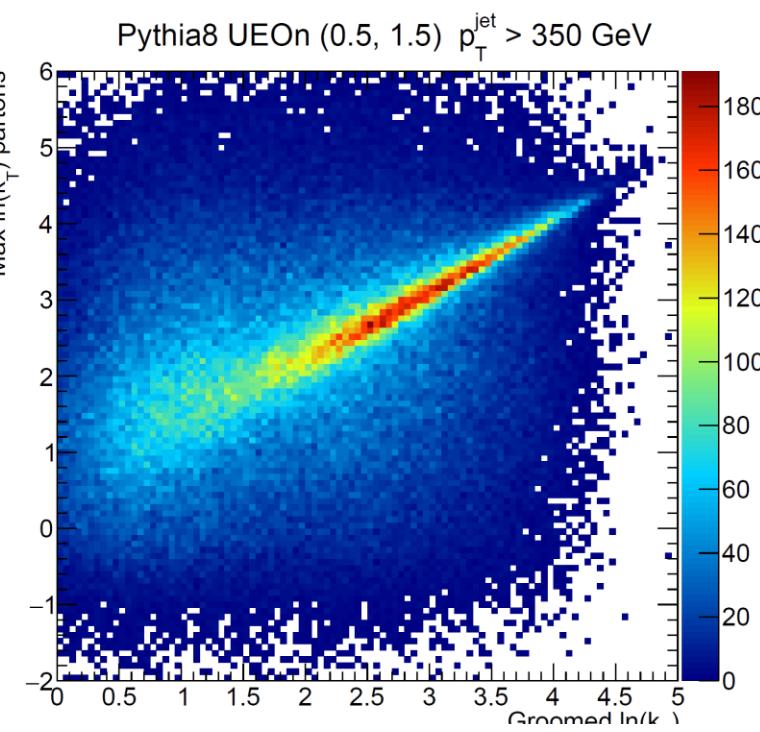
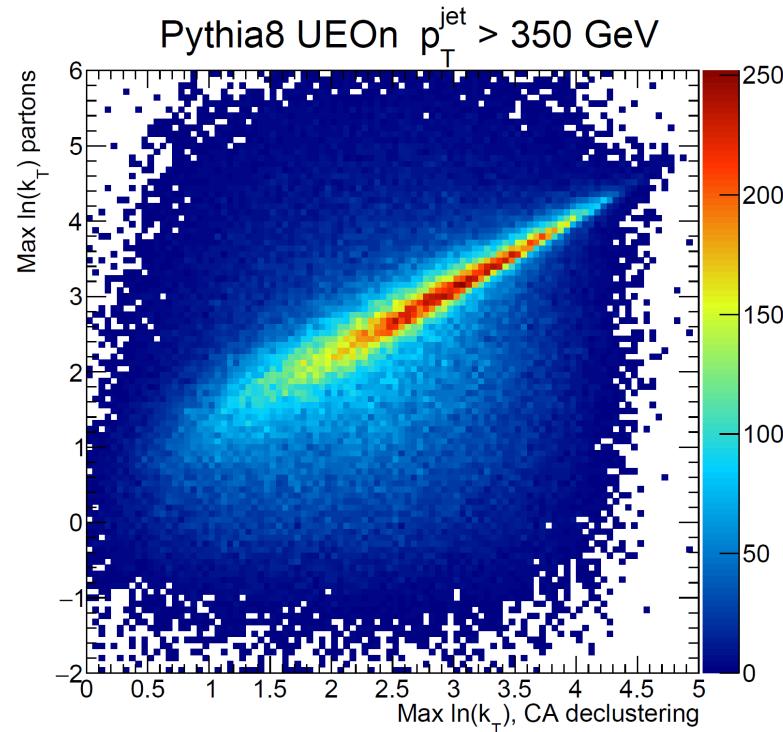
Previous Report



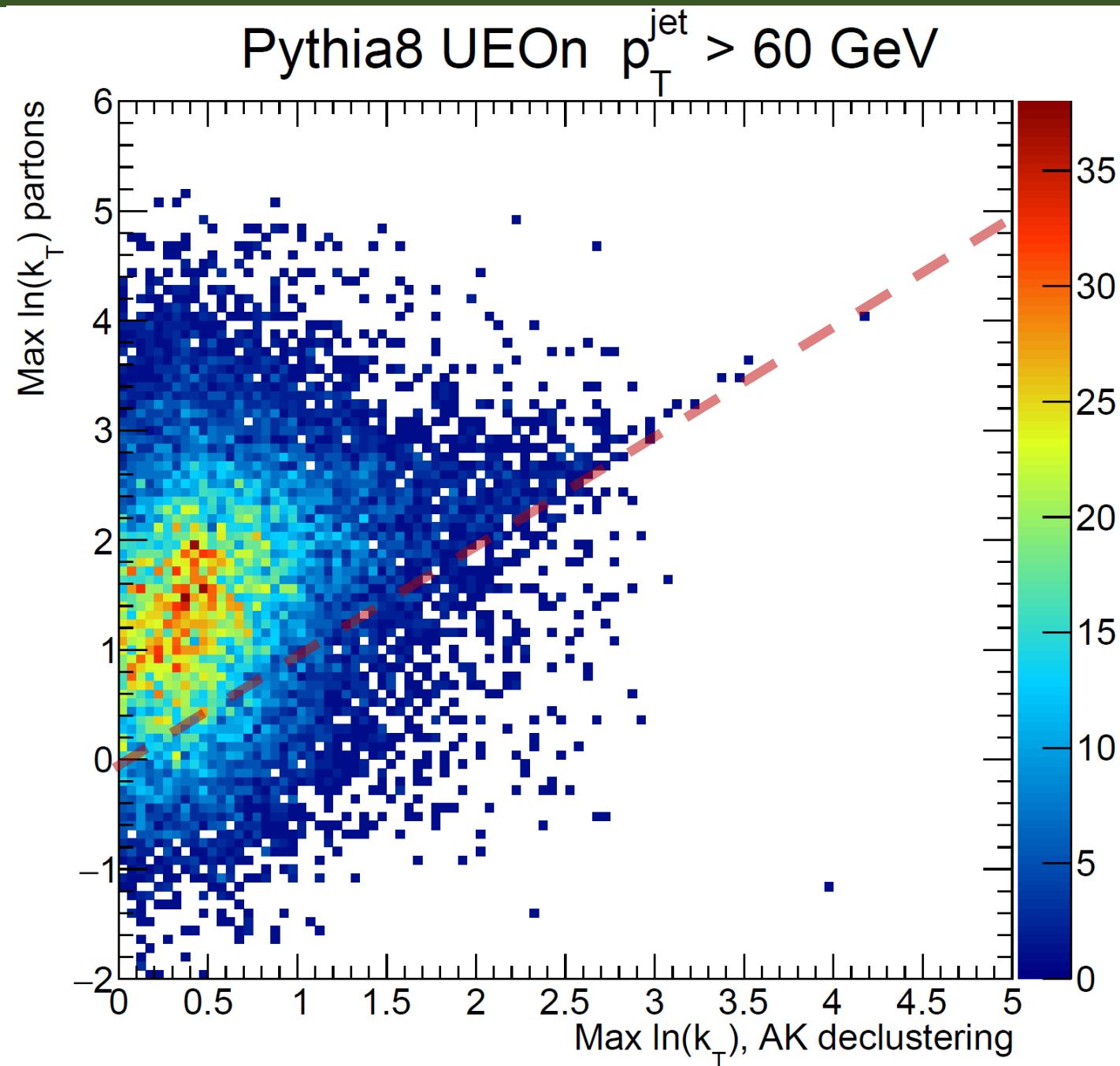
Softdrop



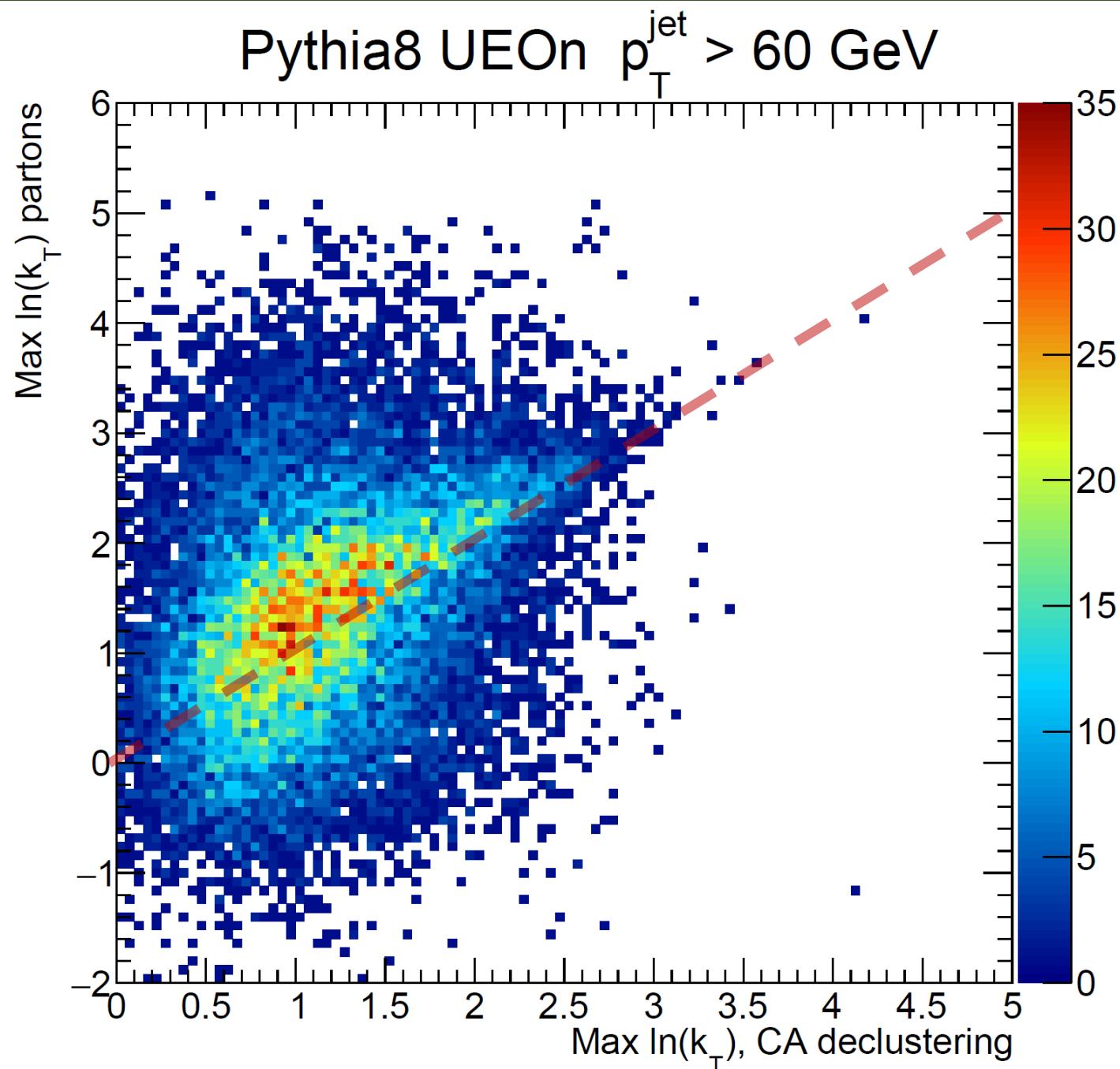
Performance with $\hat{p}_T > 300$ GeV



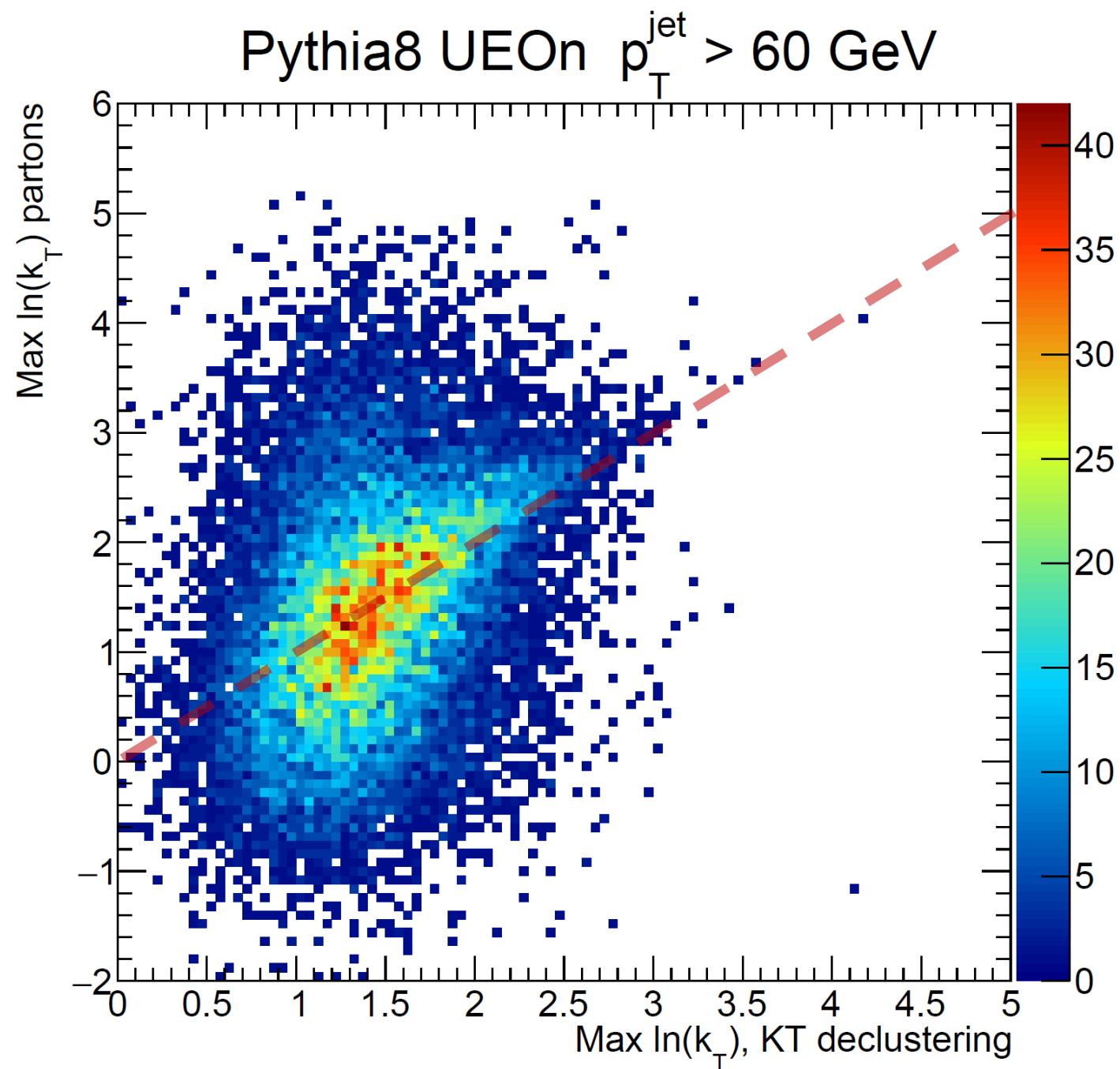
Performance with $\hat{p}_T > 50$ GeV, Anti-KT



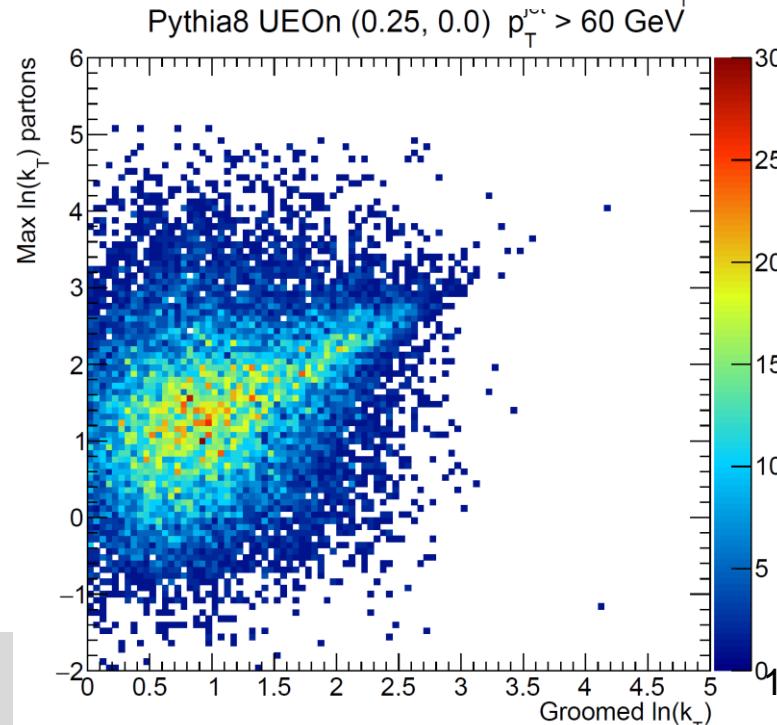
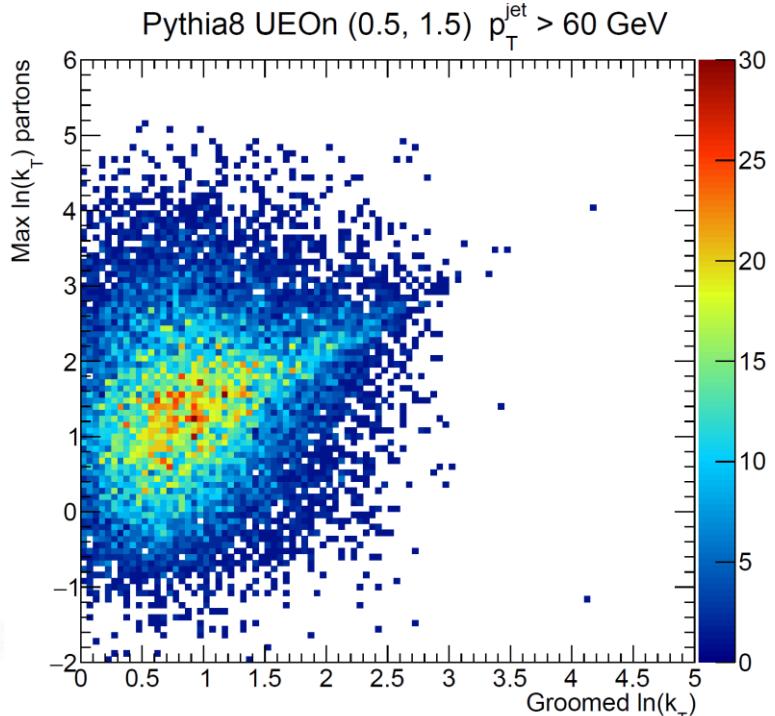
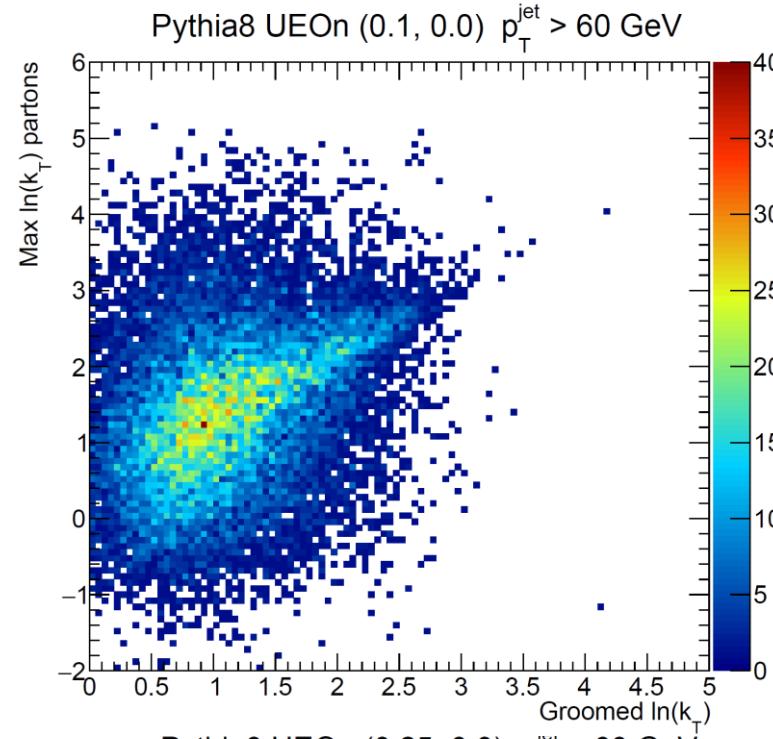
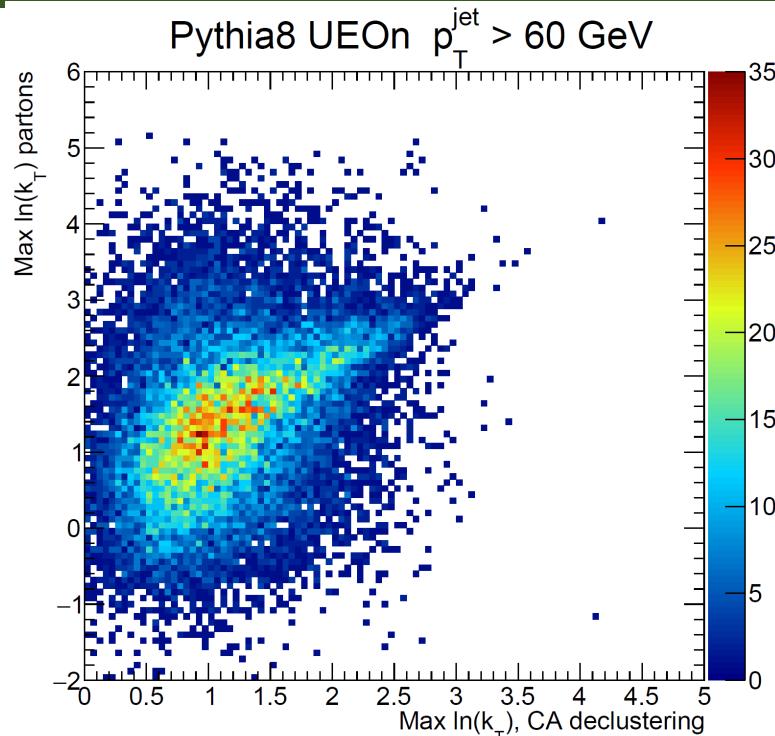
Performance with $\hat{p}_T > 50$ GeV, CA



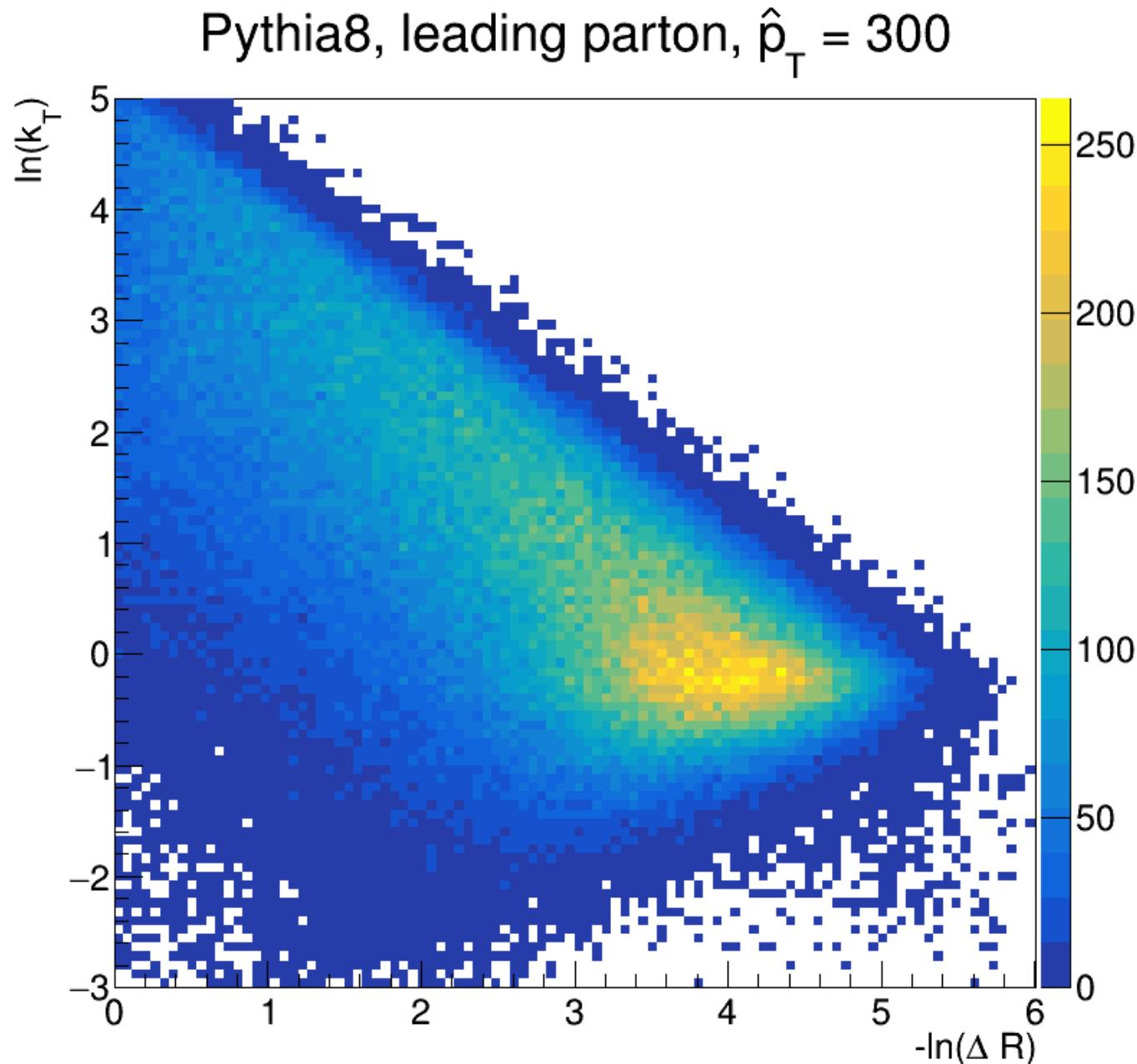
Performance with $\hat{p}_T > 50$ GeV, KT



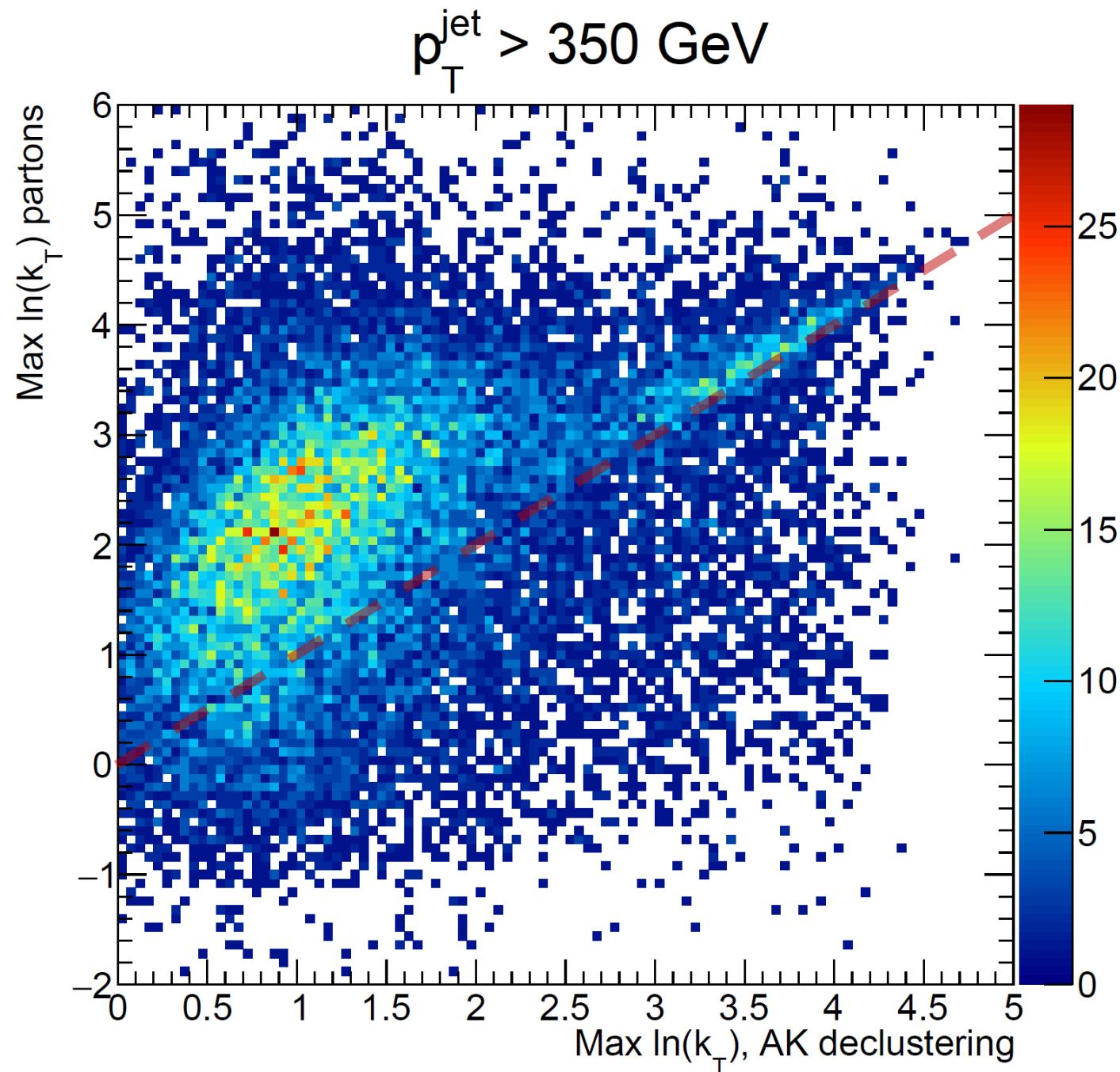
Performance with $\hat{p}_T > 50$ GeV, CA



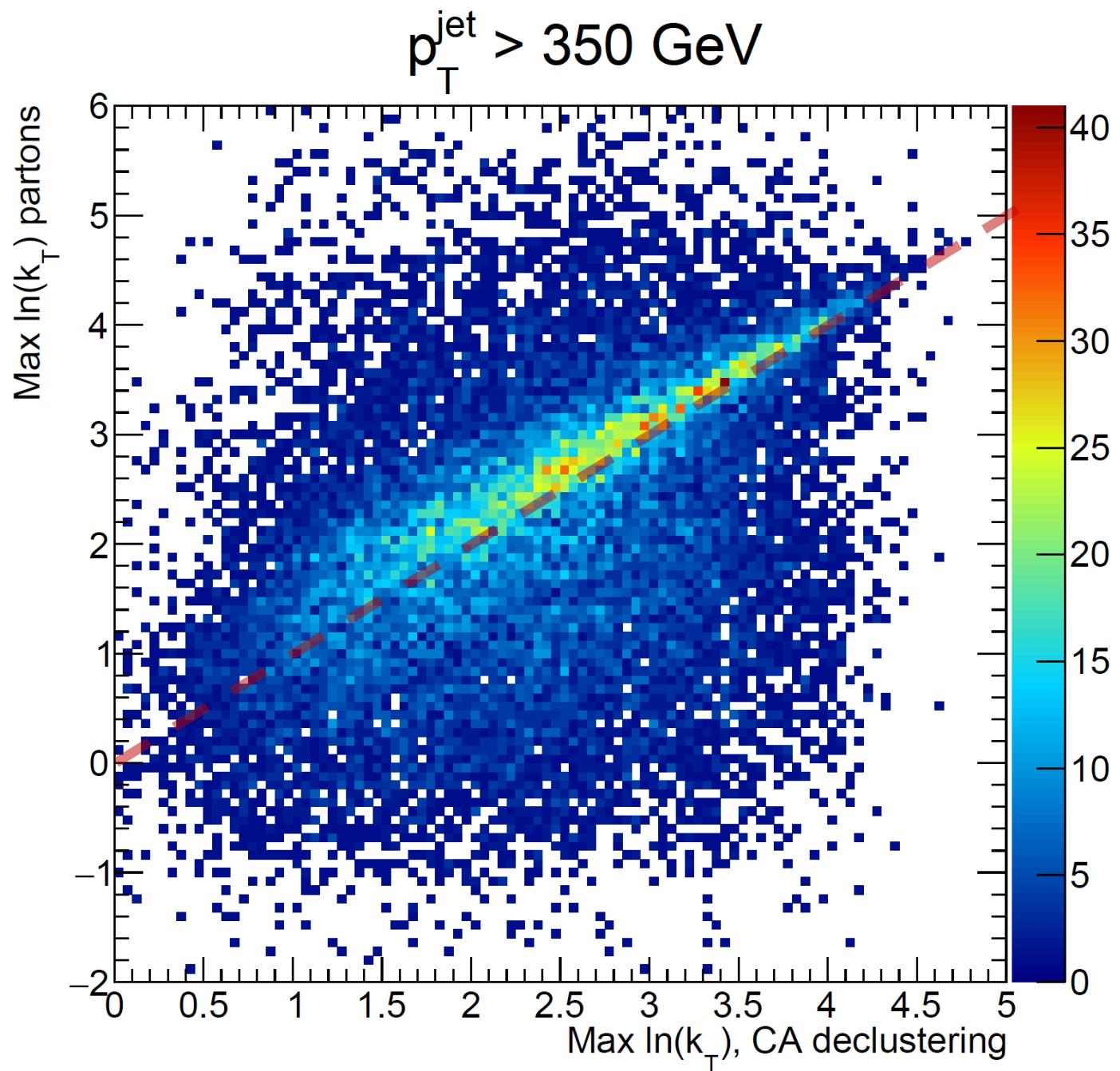
Lund Diagram from Parton Shower



PYTHIA $\hat{p}_T > 300$ GeV, Anti-KT

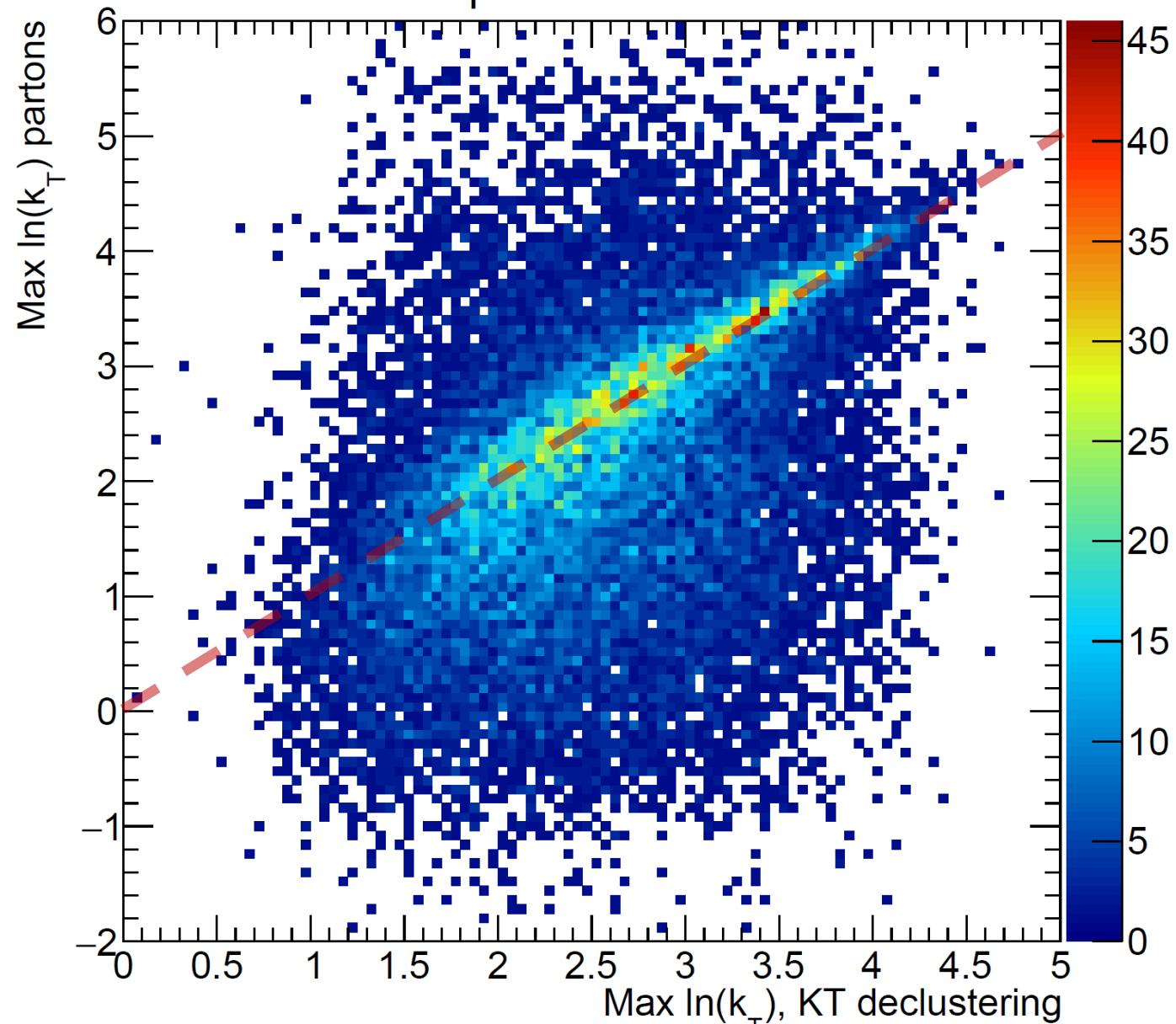


PYTHIA $\hat{p}_T > 300$ GeV, CA



PYTHIA $\hat{p}_T > 300 \text{ GeV}$, KT

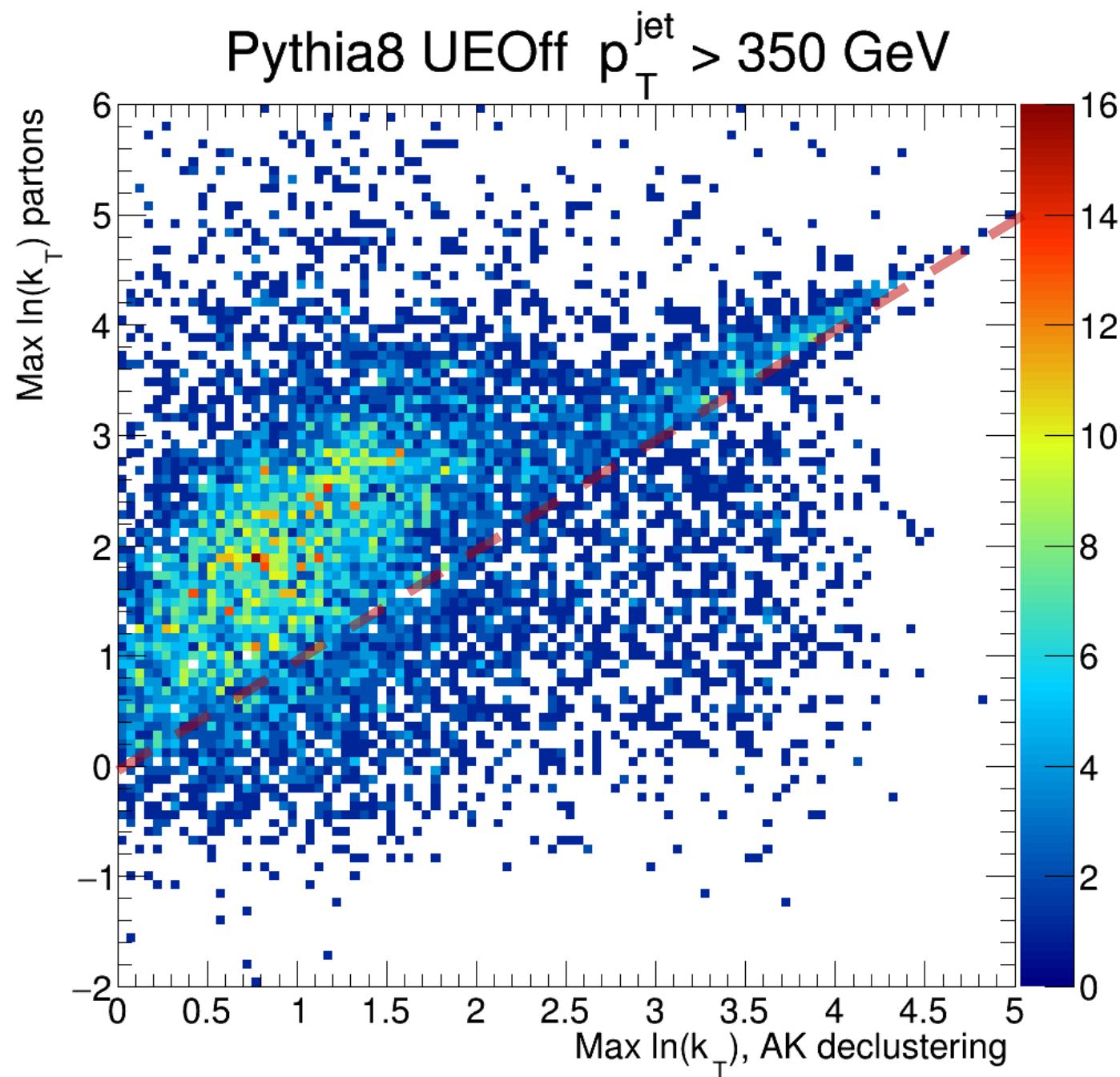
$p_T^{\text{jet}} > 350 \text{ GeV}$



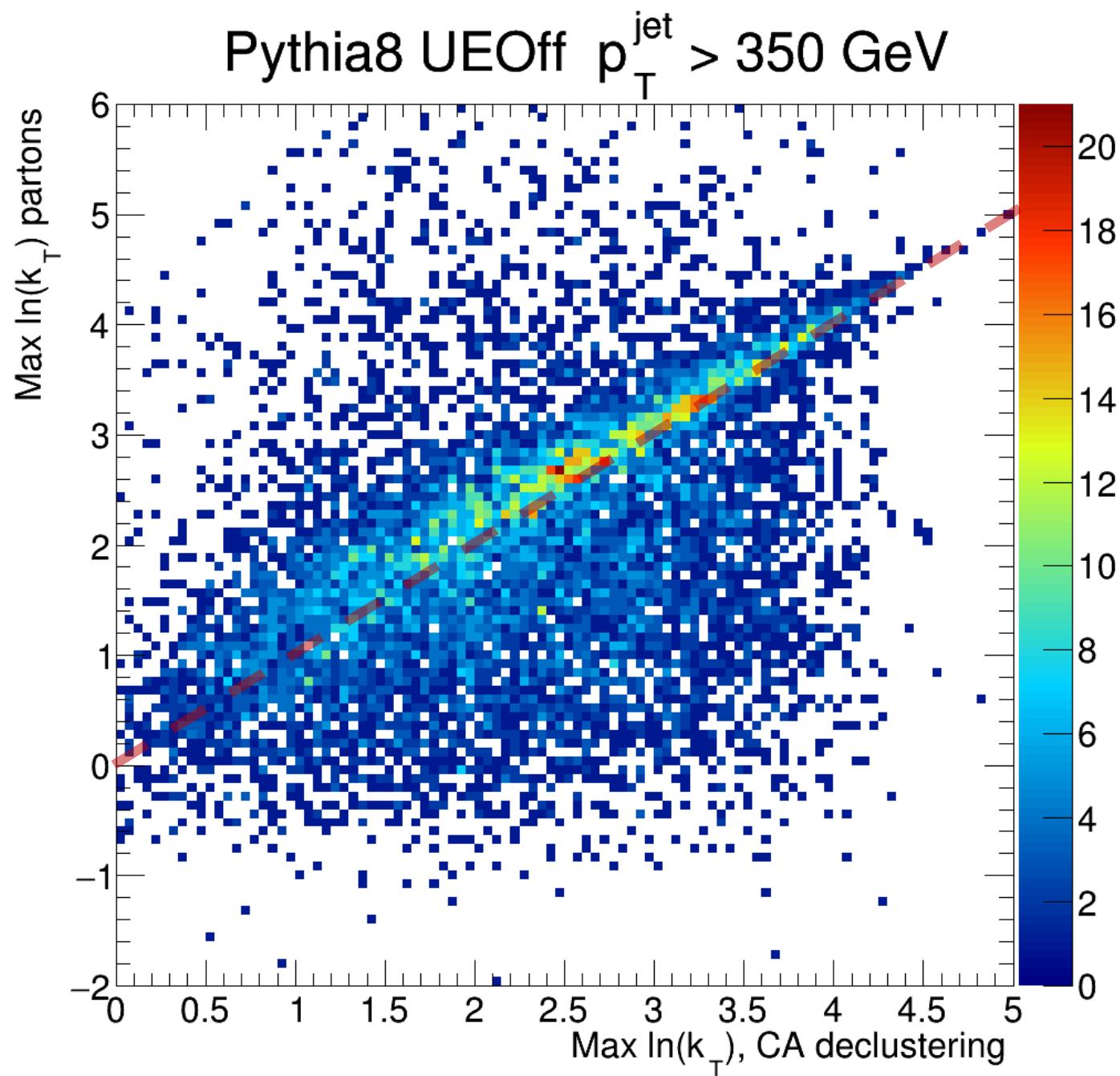
UE Off



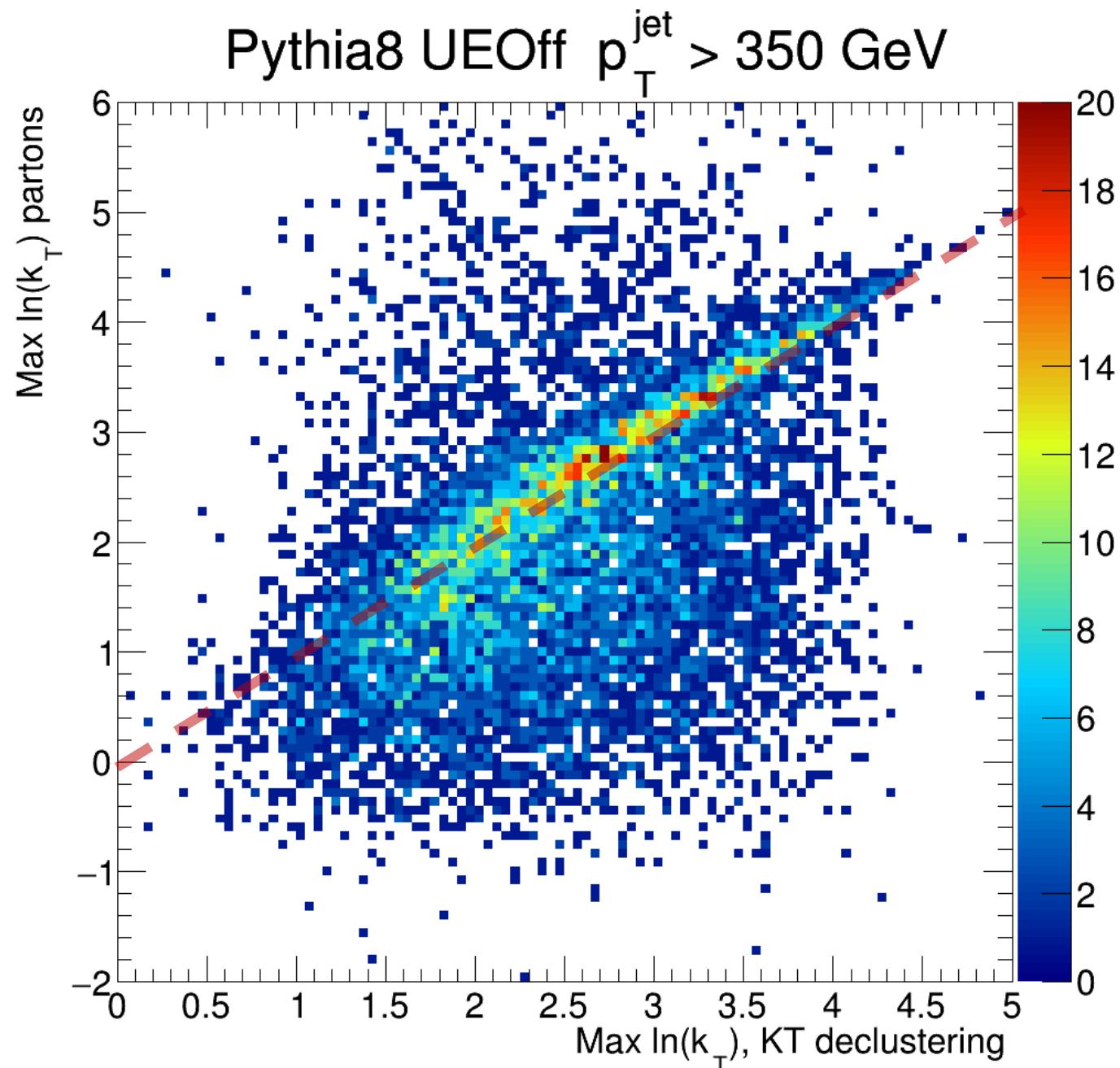
PYTHIA $\hat{p}_T > 300$ GeV, Anti-KT



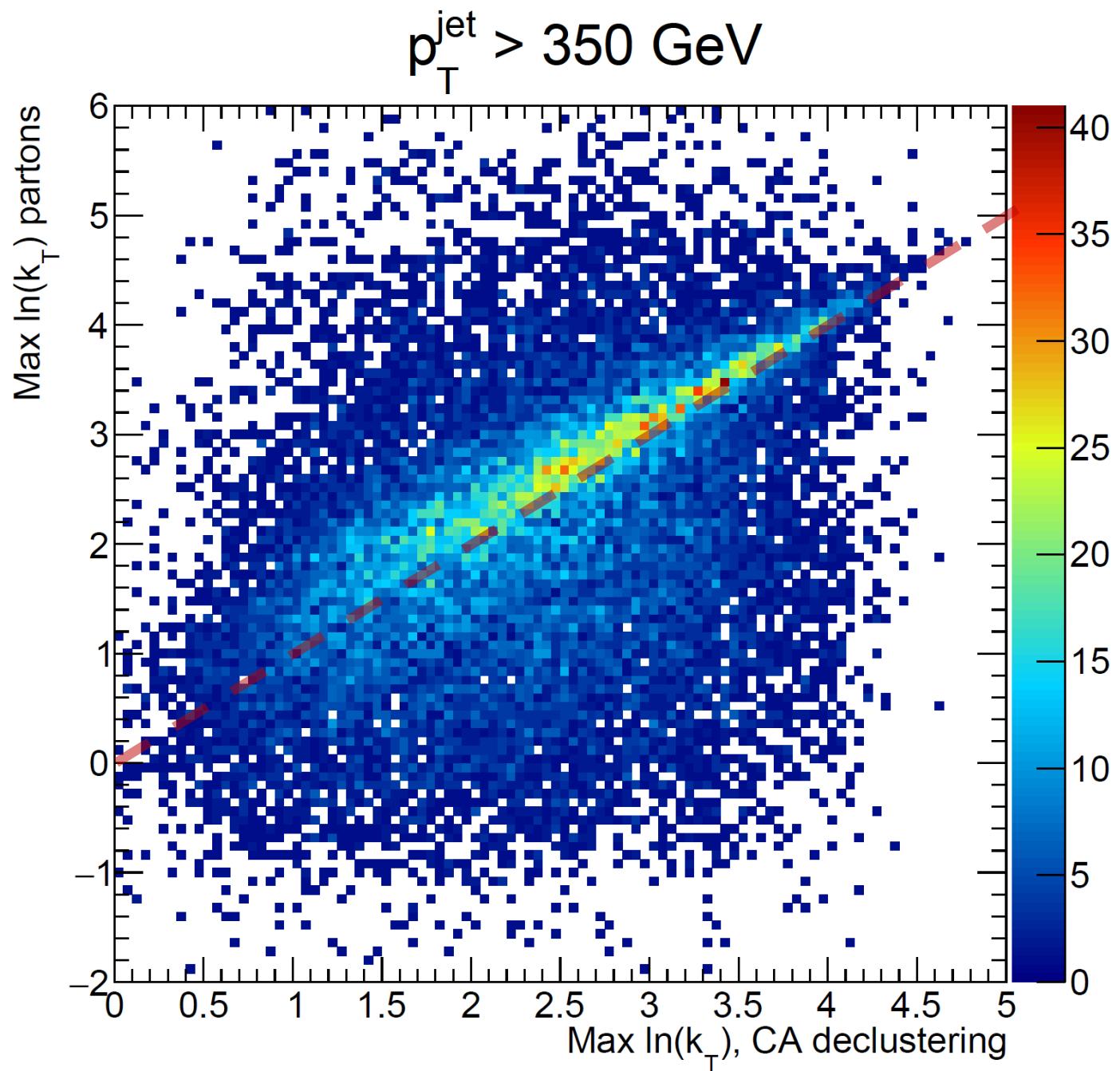
PYTHIA $\hat{p}_T > 300$ GeV, CA



PYTHIA $\hat{p}_T > 300 \text{ GeV}$, KT

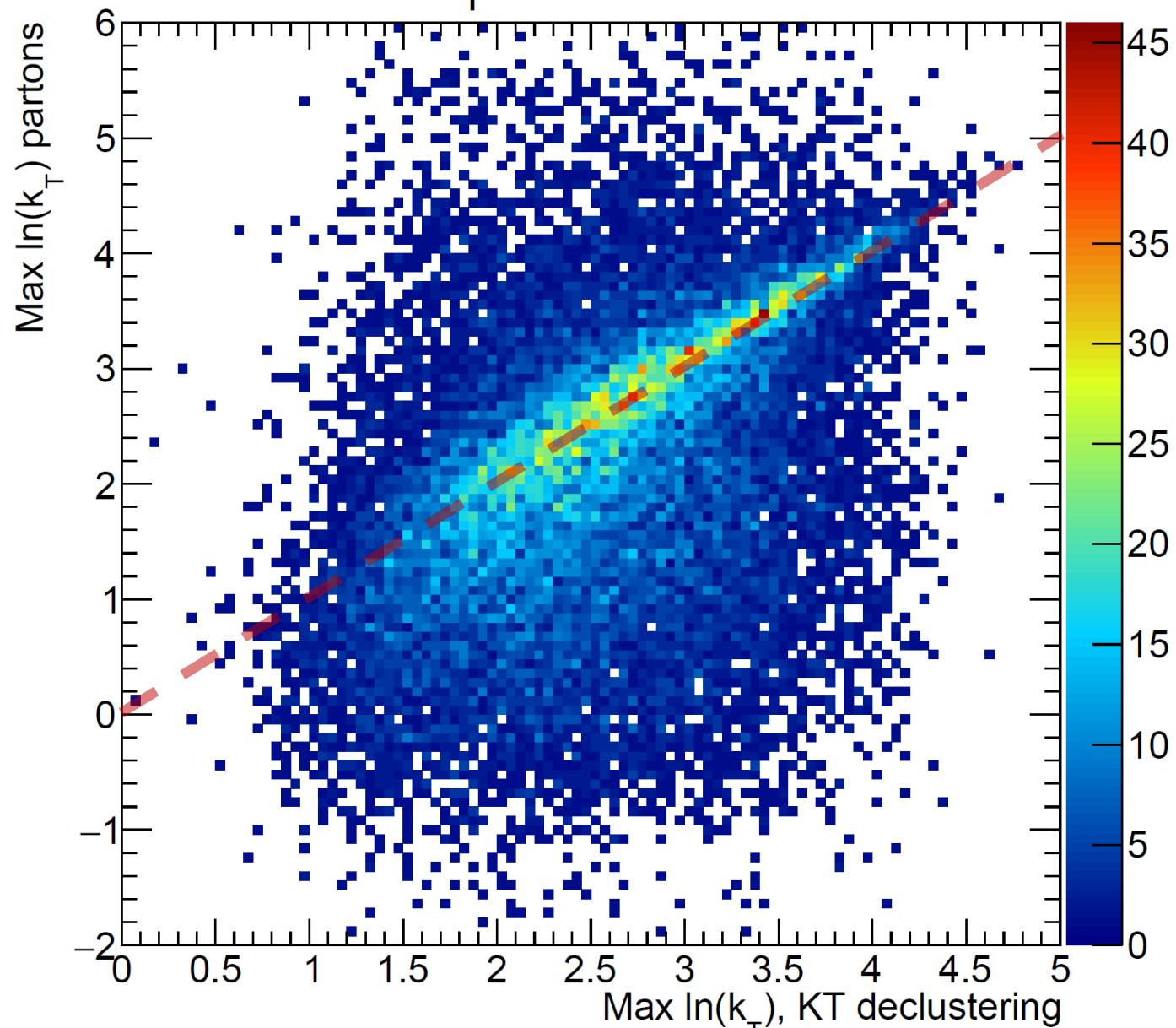


PYTHIA $\hat{p}_T > 300 \text{ GeV}$, CA



PYTHIA $\hat{p}_T > 300 \text{ GeV}$, KT

$p_T^{\text{jet}} > 350 \text{ GeV}$

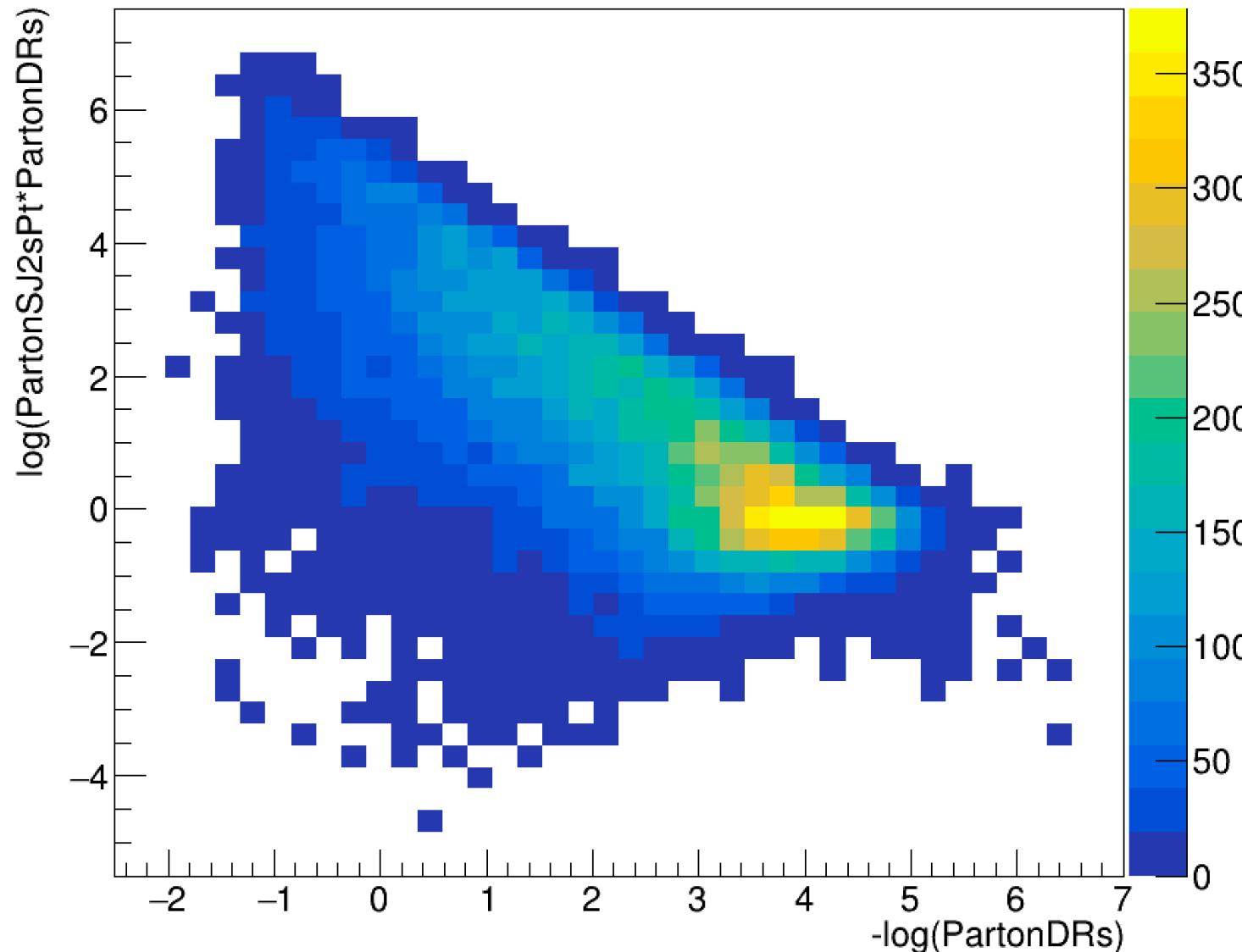


Backup slides

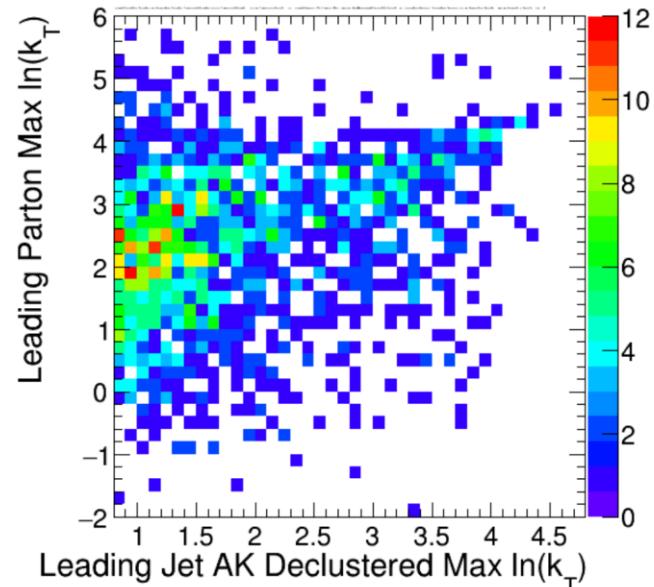
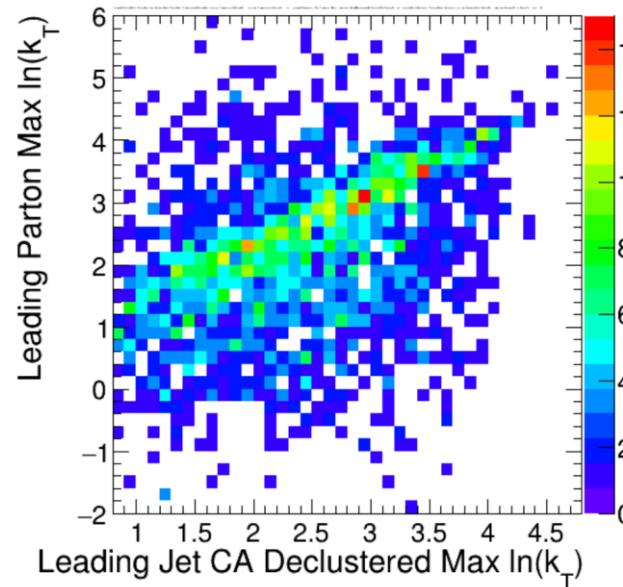
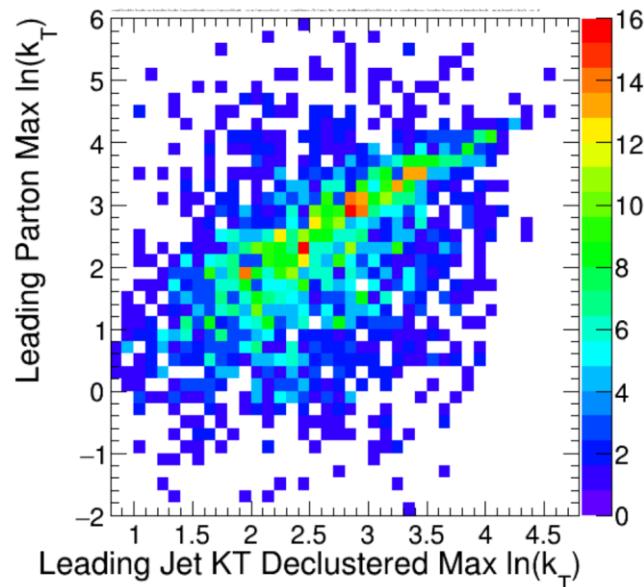
Unbeautified plots

Unbeautified Parton Level Lund Diagram

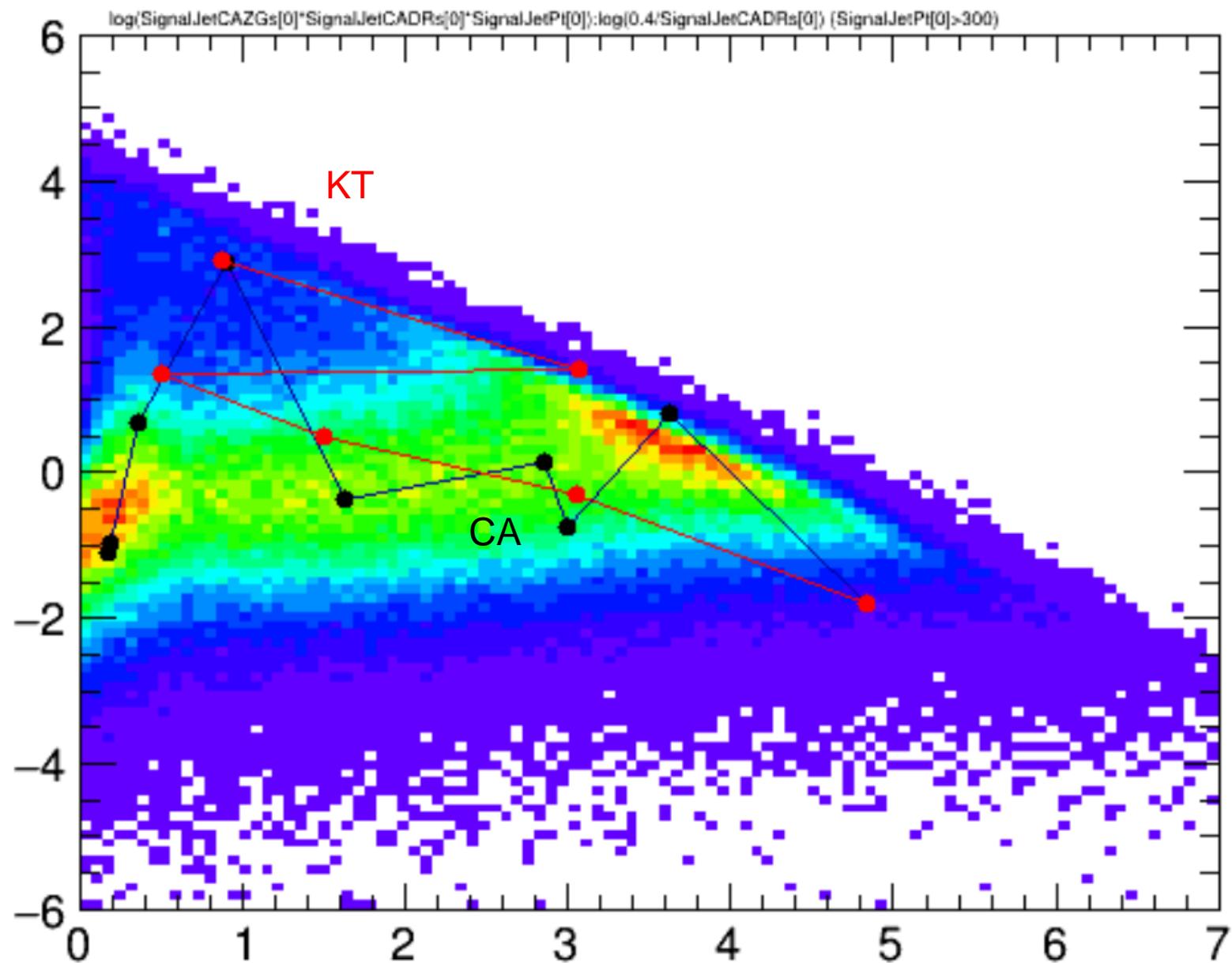
$\log(\text{PartonSJ2sPt} * \text{PartonDRs}) : -\log(\text{PartonDRs})$



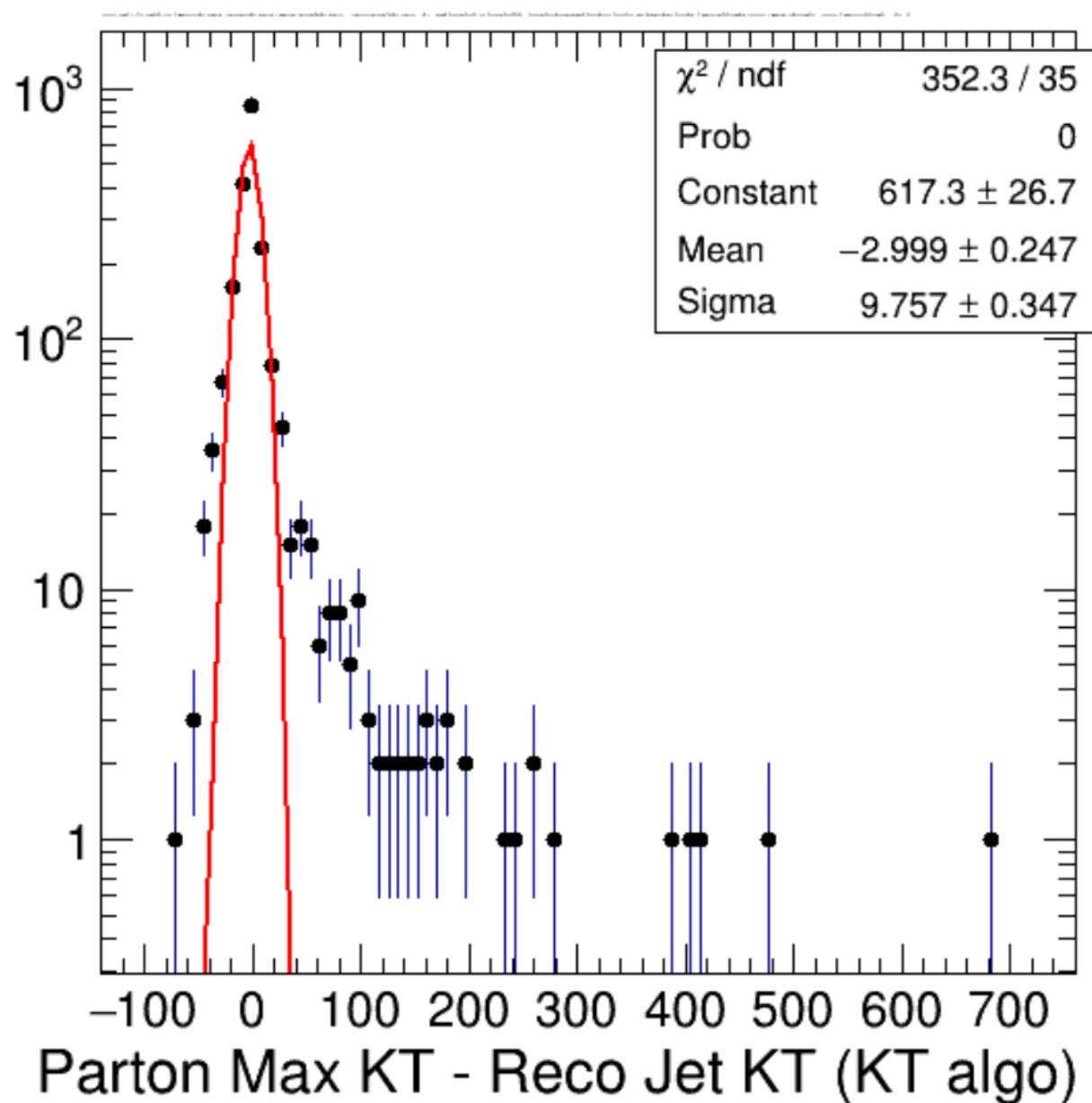
With lower statistics in cross-check macro



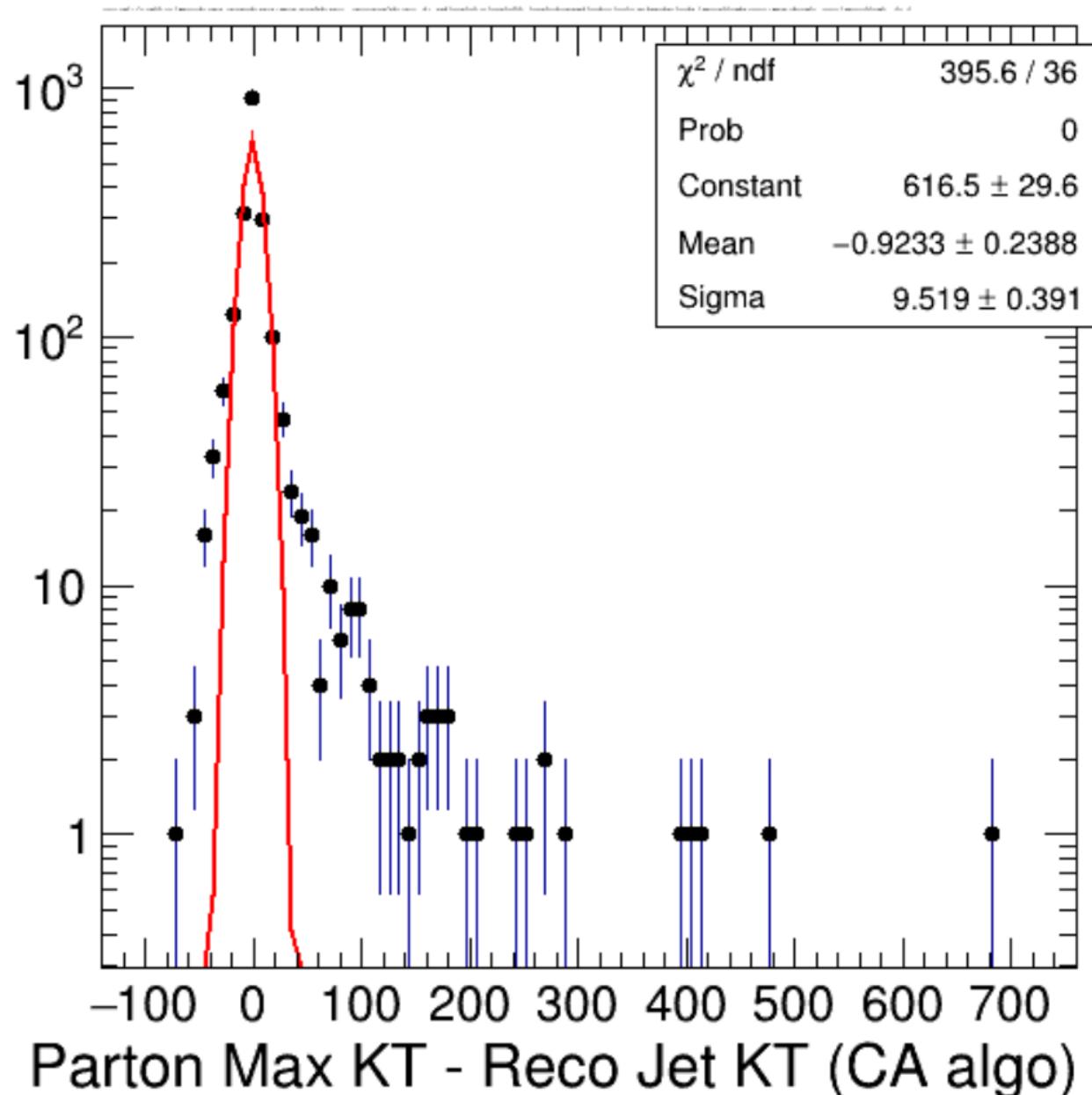
Unbeautified bad plot



Unbeautified resolution function



Unbeautified resolution function



Unbeautified resolution function

