

## PYTHIA 6.206 Field/CDF Tune Set A (CTEQ5L)

Parameter	Default	Tune	Description
<b>PARP(67)</b>	1.0	<b>4.0</b>	Scale factor that governs the amount of initial-state radiation.
<b>MSTP(81)</b>	1	<b>1</b>	Turns on multiple parton interactions (MPI).
<b>MSTP(82)</b>	1	<b>4</b>	Double Gaussian matter distribution.
<b>PARP(82)</b>	1.9	<b>2.0</b>	Cut-off for multiple parton interactions, $P_{T0}$ .
<b>PARP(83)</b>	0.5	<b>0.5</b>	Fraction of energy in core radius.
<b>PARP(84)</b>	0.2	<b>0.4</b>	Core radius.
<b>PARP(85)</b>	0.33	<b>0.9</b>	Probability that the MPI produces two gluons with color connections to the "nearest neighbors".
<b>PARP(86)</b>	0.66	<b>0.95</b>	Probability that the MPI produces two gluons either as described by PARP(85) or as a closed gluon loop. The remaining fraction consists of quark-antiquark pairs.
<b>PARP(89)</b>	1,000.0	<b>1,800.0</b>	Determines the reference energy $E_0$ .
<b>PARP(90)</b>	0.16	<b>0.25</b>	Determines the energy dependence of the cut-off $P_{T0}$ as follows $P_{T0}(E_{cm}) = P_{T0}(E_{cm}/E_0)^{PARP(90)}$ .

<b>PYTHIA ATLAS tune (CTEQ5L)</b>			
<b>Parameter</b>	<b>Default</b>	<b>Tune</b>	<b>Description</b>
<b>PARP(67)</b>	1.0	<b>1.0</b>	Scale factor that governs the amount of initial-state radiation.
<b>MSTP(81)</b>	1	<b>1</b>	Turns on multiple parton interactions (MPI).
<b>MSTP(82)</b>	1	<b>4</b>	Double Gaussian matter distribution.
<b>PARP(82)</b>	1.9	<b>1.8</b>	Cut-off for multiple parton interactions, $P_{T0}$ .
<b>PARP(83)</b>	0.5	<b>0.5</b>	Fraction of energy in core radius
<b>PARP(84)</b>	0.2	<b>0.5</b>	core radius.
<b>PARP(85)</b>	0.33	<b>0.33</b>	Probability that the MPI produces two gluons with color connections to the "nearest neighbors".
<b>PARP(86)</b>	0.66	<b>0.66</b>	Probability that the MPI produces two gluons either as described by PARP(85) or as a closed gluon loop. The remaining fraction consists of quark-antiquark pairs.
<b>PARP(89)</b>	1,000.0	<b>1,000.0</b>	Determines the reference energy $E_0$ .
<b>PARP(90)</b>	0.16	<b>0.16</b>	Determines the energy dependence of the cut-off $P_{T0}$ as follows $P_{T0}(E_{cm}) = P_{T0}(E_{cm}/E_0)^{PARP(90)}$ .

	ATLAS	CMS	LHCb	ALICE
$\eta_{\text{ch}}$	2.5	2.5	1.8-4.9	0.9
$\eta_{\text{all}}$	5	5  default  7  extended	1.8-4.9	??
$p_{\text{T}}^{\text{ch}}$ (threshold)	0.5	1.0 default 0.5 extended recons	0.2	0.1-0.2
Particle ID			K/ $\pi$ : 1-100 GeV K/p: ??	K/ $\pi$ : <3 GeV K/p: <5 GeV