快模拟和全重建对比

2025.11.4

工作内容

- 1.完善更新后的pdf
- 2.验证完善后的pdf文件的效果

（1）五种衰变道全重建跟快模拟效率的对比

（2）带电粒子效率的对比：带电粒子动量(0.05,3.5GeV)均匀分70个bin，角度(-1,1)均匀分80个bin。

（3）光子效率的对比：动量（0.03，3.5GeV）不均匀分bin131个，角度范围为（-1，1）不均匀分61个。

效率对比

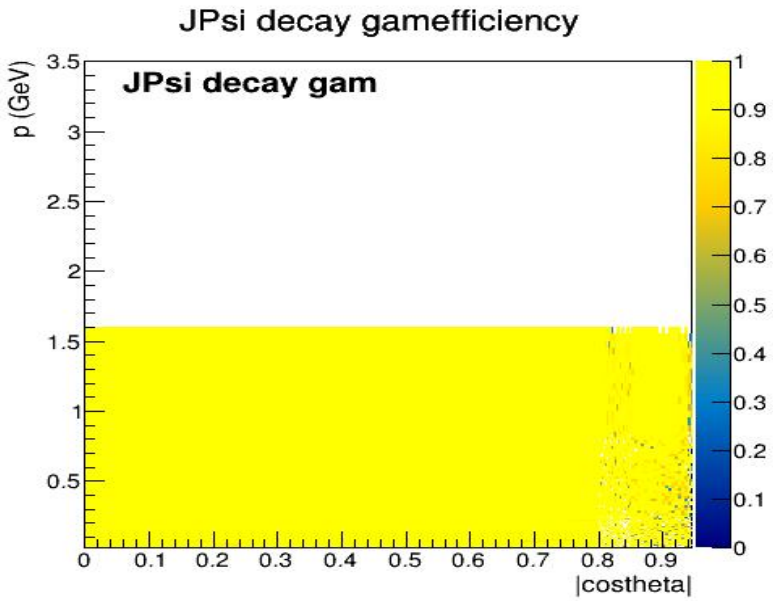
llbar	fast	full	mupi	fast	full	kskpi	fast	full
all	100000	100000	all	100000	100000	all	100000	100000
lam	72177	71479	4trk（mumupipi各一条）	67935	62148	k3pi（1个k，三个pi）	62792	57831
vtxfit	68675	61670	goodhypo	67935	62148	goodtrk	62792	57260
2ndvtxfit	68287	61481	vtxfit	62039	60919	vtxfit	61063	56485
			kmfit	51375	55640	2ndvtxfit	58003	55880
						kmfit	47608	53679
Efficiency	**0.68287**	**0.61481**	**Efficiency**	**0.51375**	**0.5564**	**Efficiency**	**0.47608**	**0.53679**

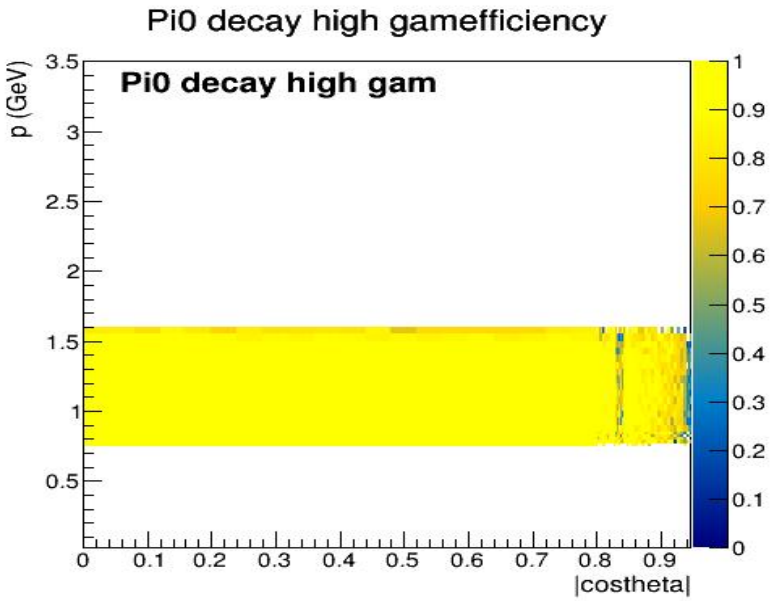
效率对比

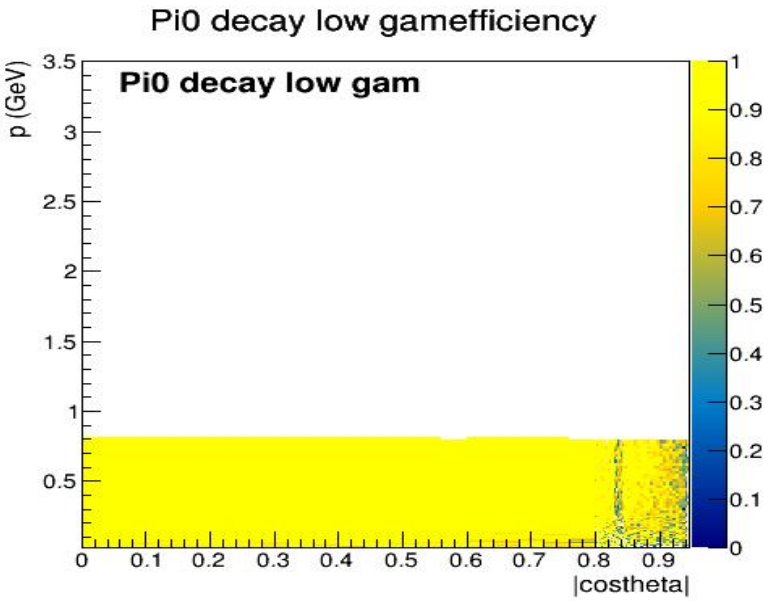
gampi0	fast	full	rhopi	fast	full
all	100000	100000	all	100000	100000
emcCol（有效簇射）	69555	90162	goodtrk（带电）	79907	78163
goodgam（光子数大于3）	69073	84313	goodgam（中性）	60601	72760
4c	49521	77630	vtxfit	59356	72453
kmfit	49521	77630	4cloop	47349	64223
			kmfit	47349	64223
Efficiency	**0.49521**	**0.7763**	**Efficiency**	**0.47349**	**0.64223**

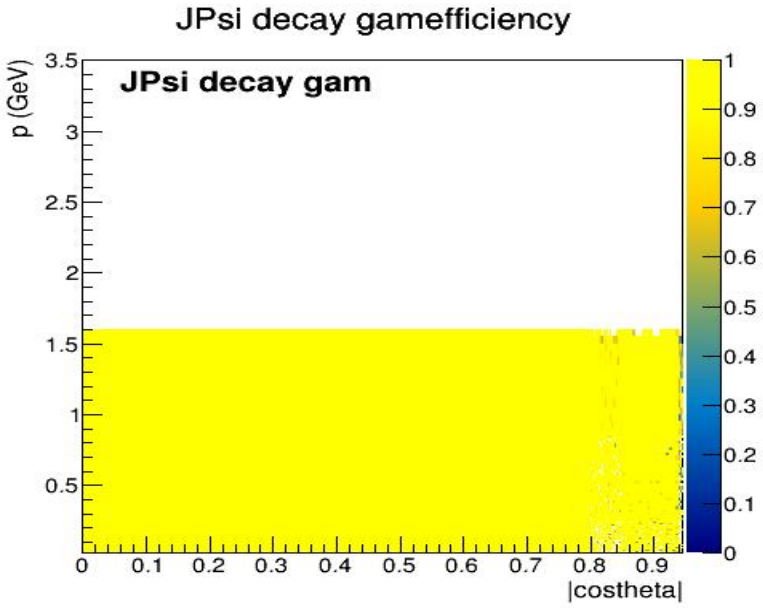
对于含有中性粒子的效率过小，以gampi0为例：找出三种光子，分别进行重建效率的分析

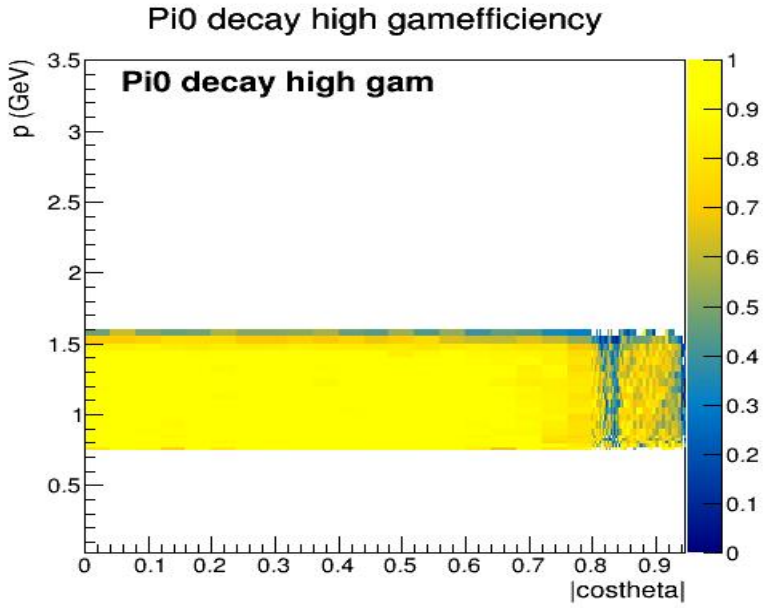
gampi0衰变中三种光子的重建效率

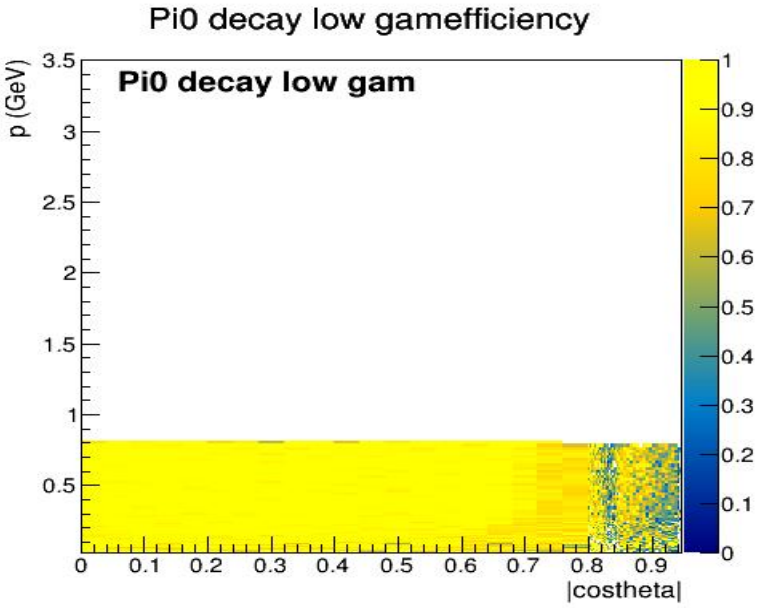








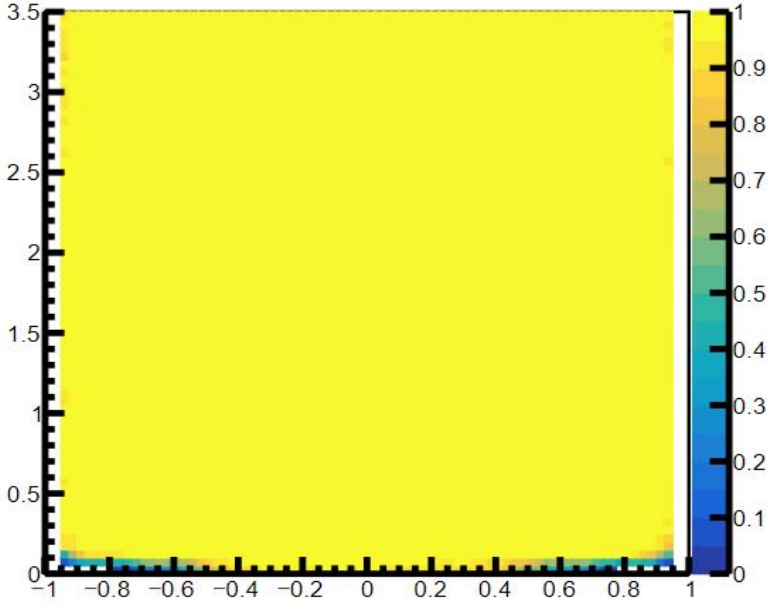


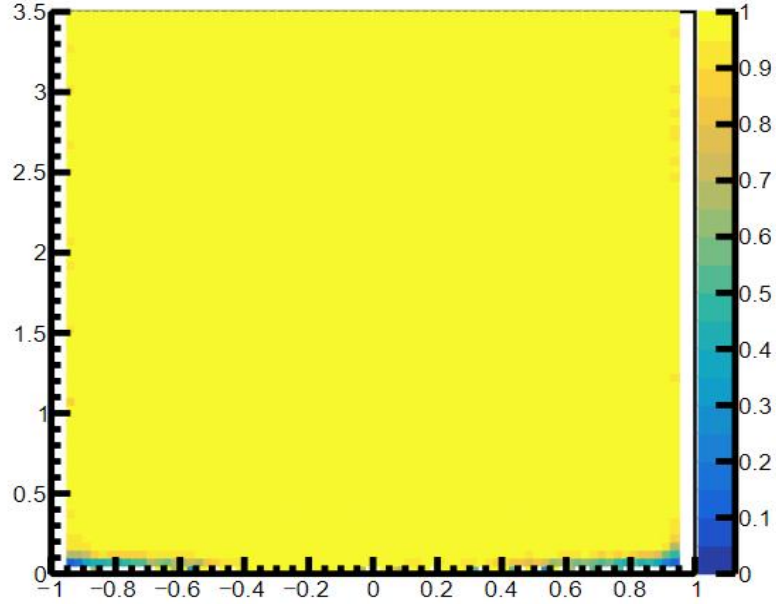


总结

- 快模拟中，原本能被全重建识别的光子簇射，有一部分因效率下降而无法被有效重建，最终表现为快模拟的有效簇射数小于全重建。本质是快模拟中三种光子的重建效率整体低于全重建。

ElecP_Curv_Eff2D





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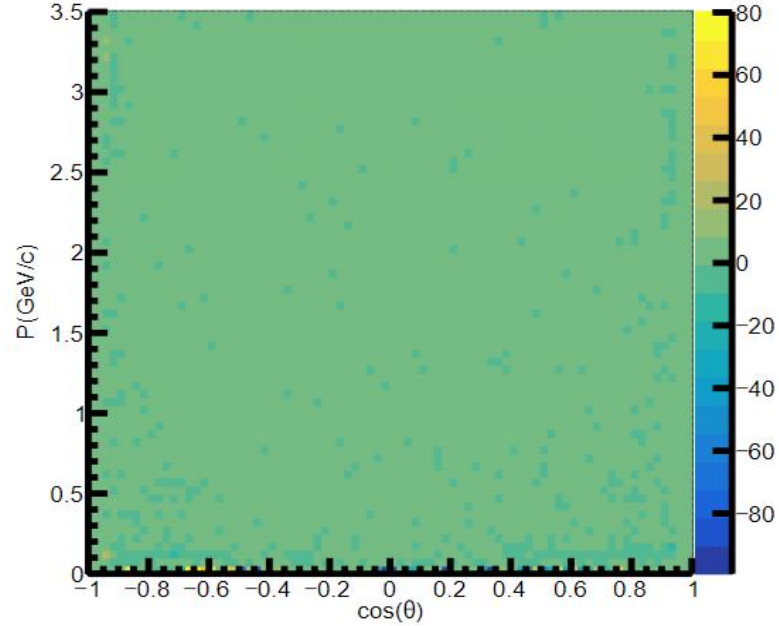

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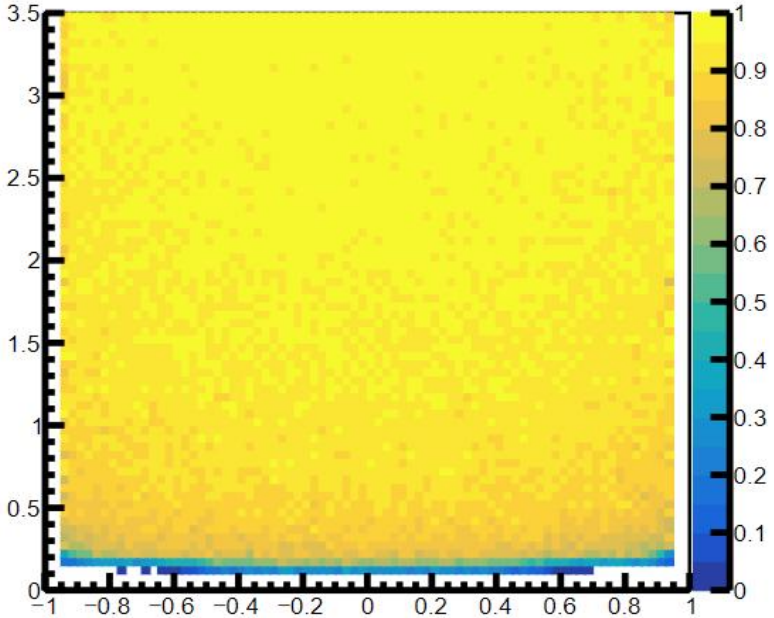

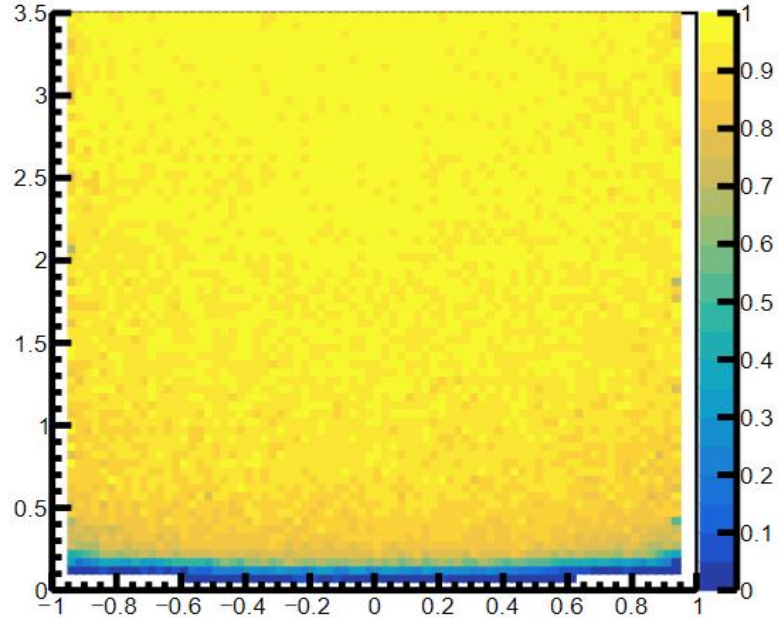

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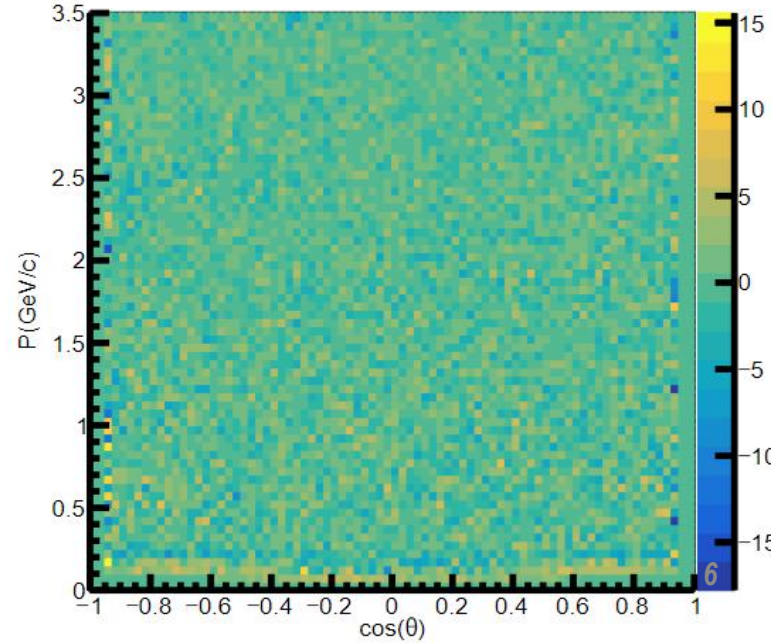

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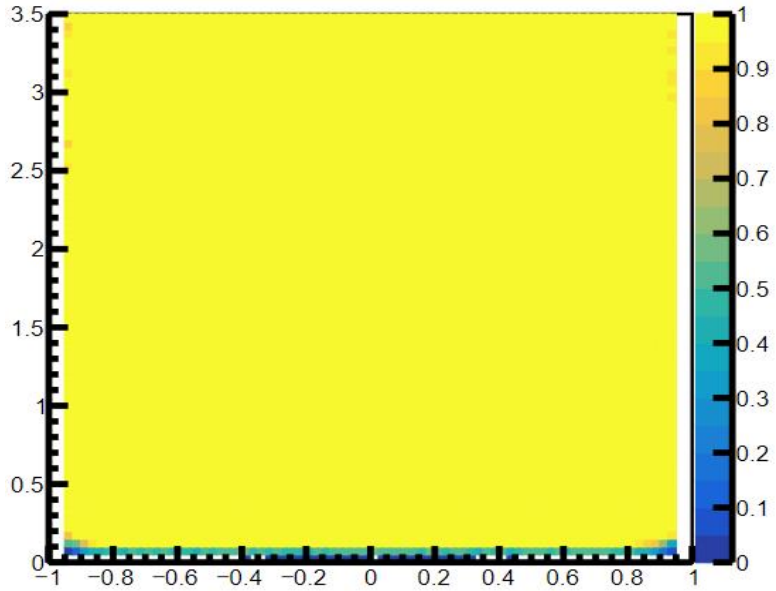

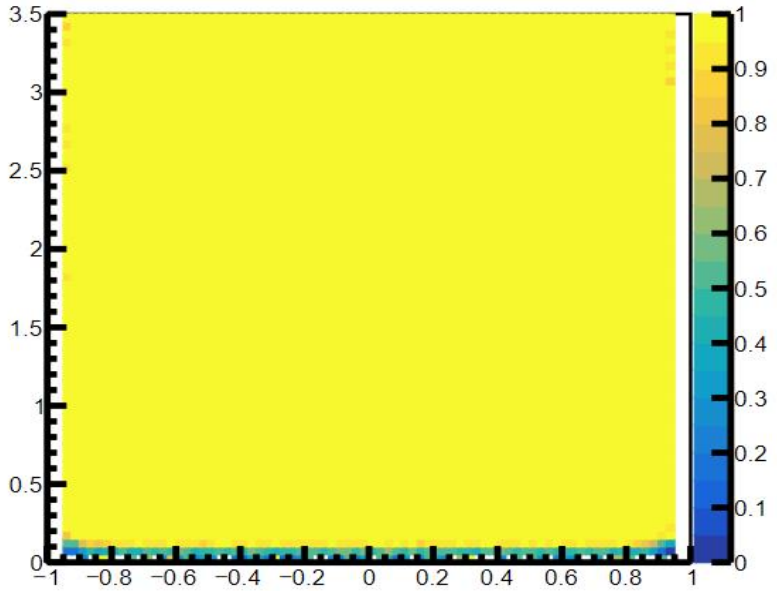

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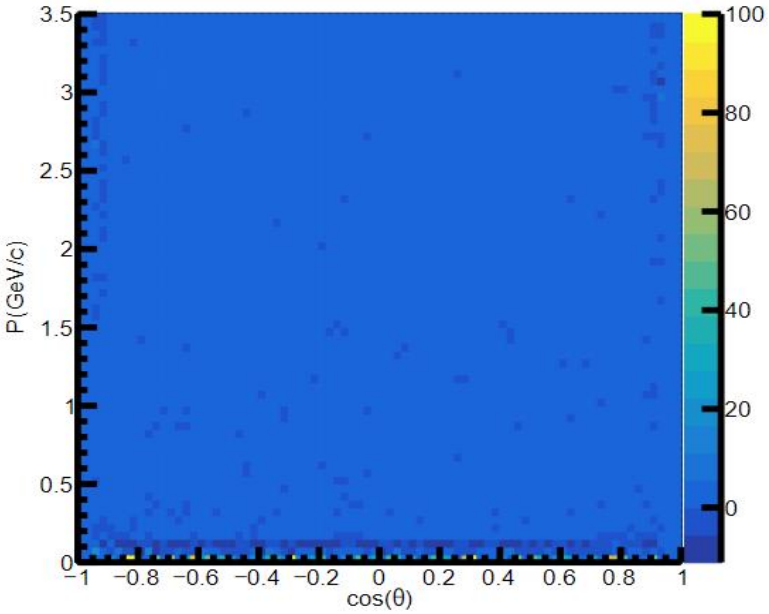

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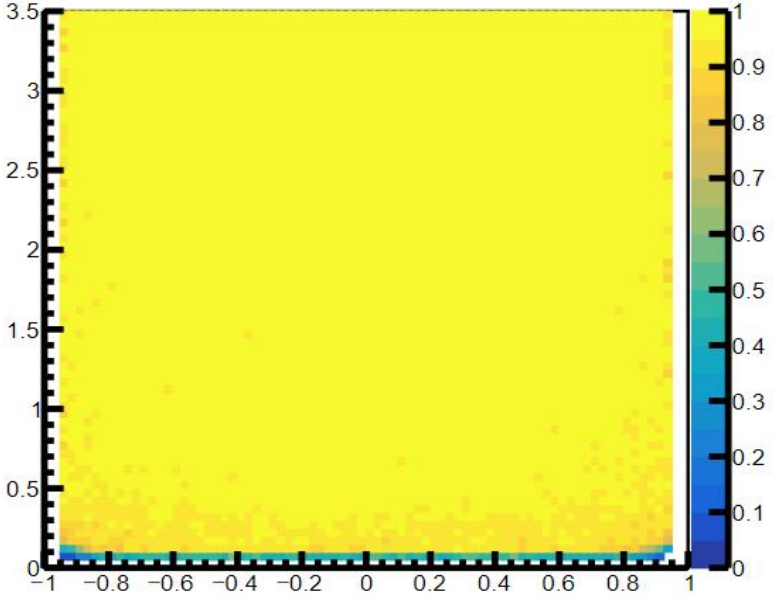

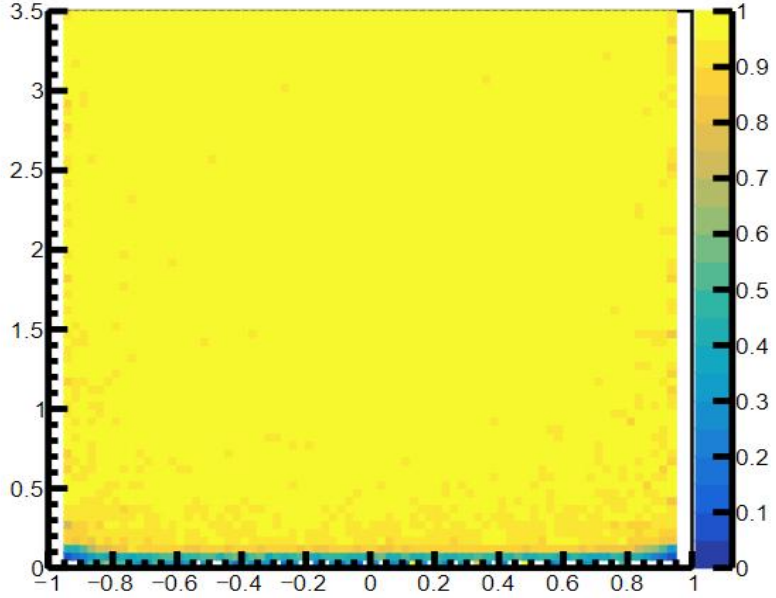

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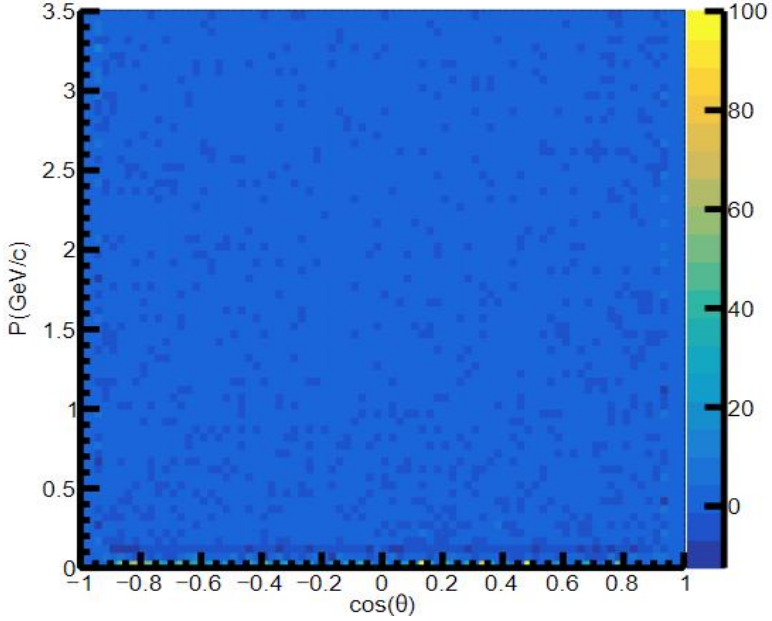

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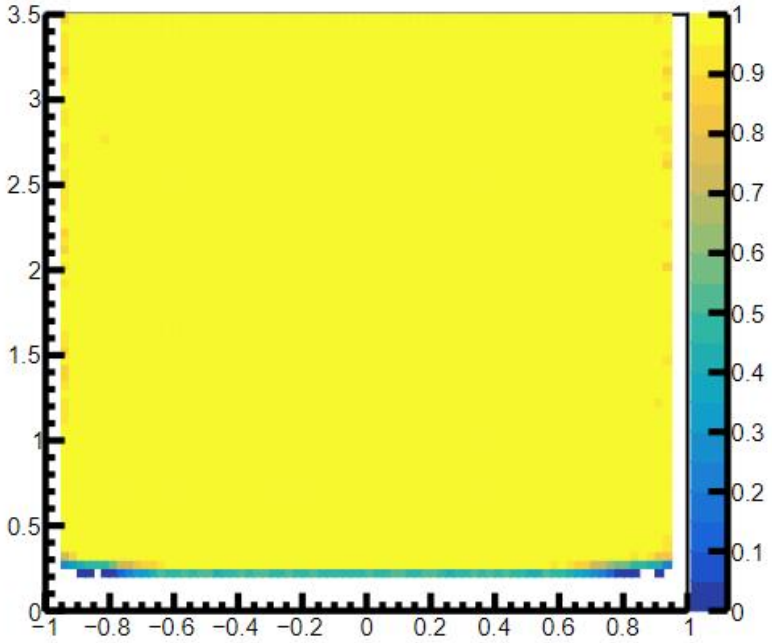

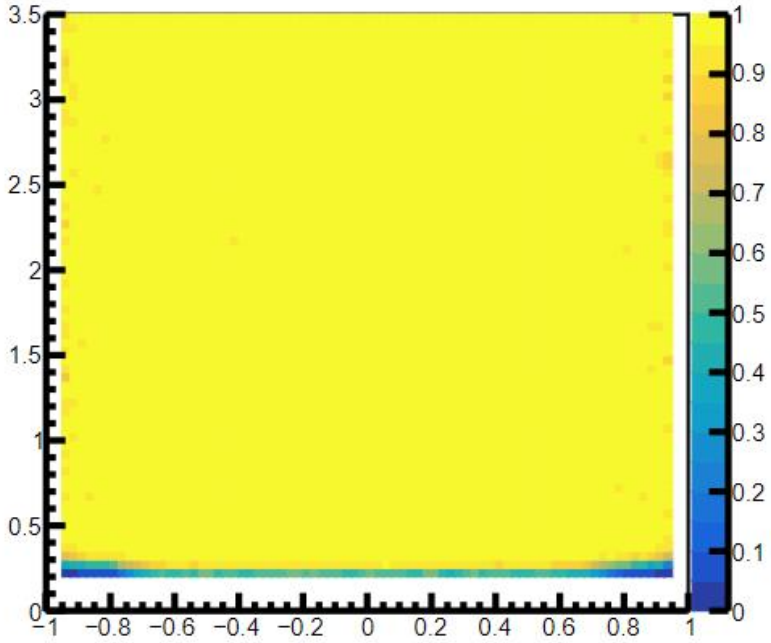

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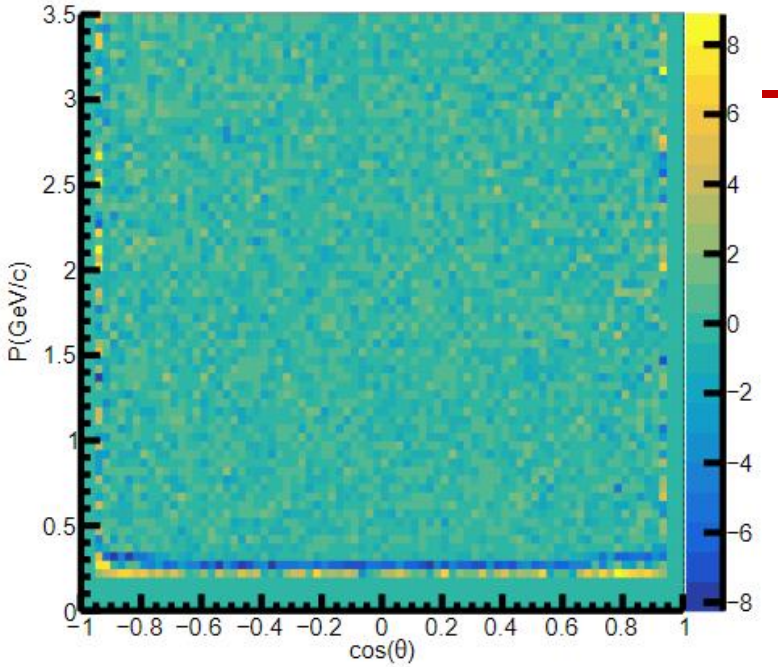
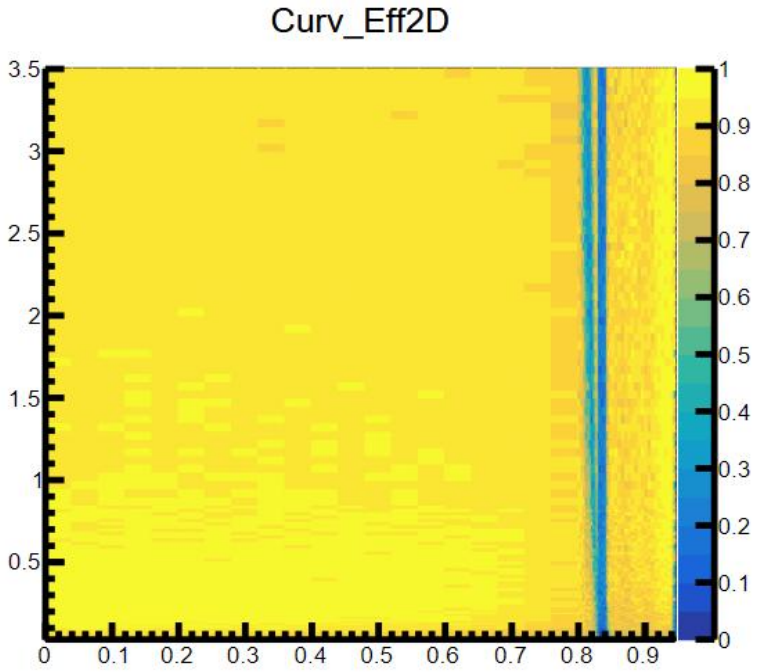
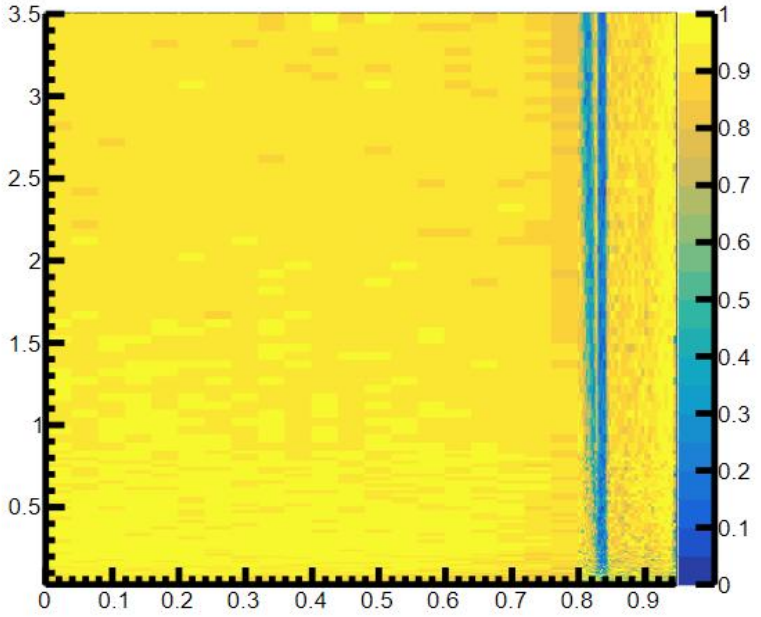
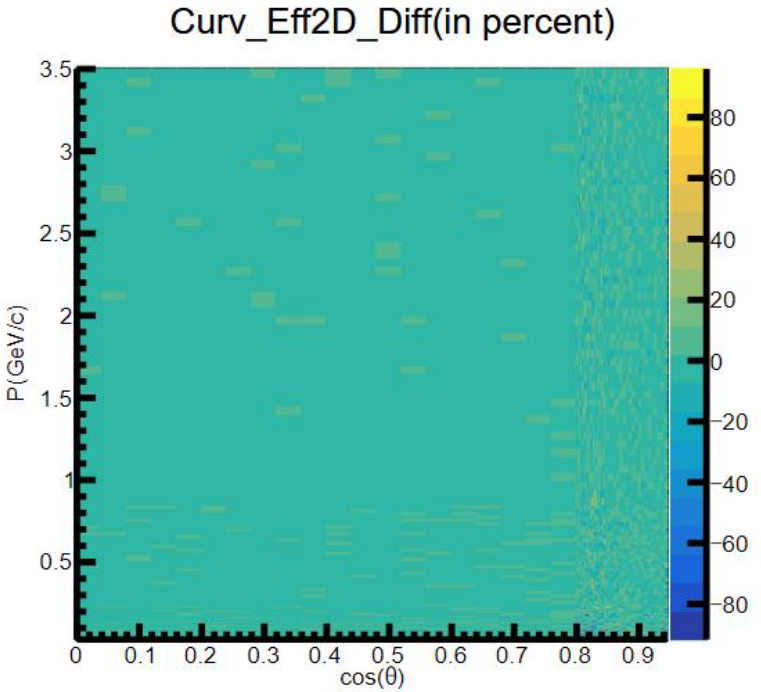


gamma eff compare







back up

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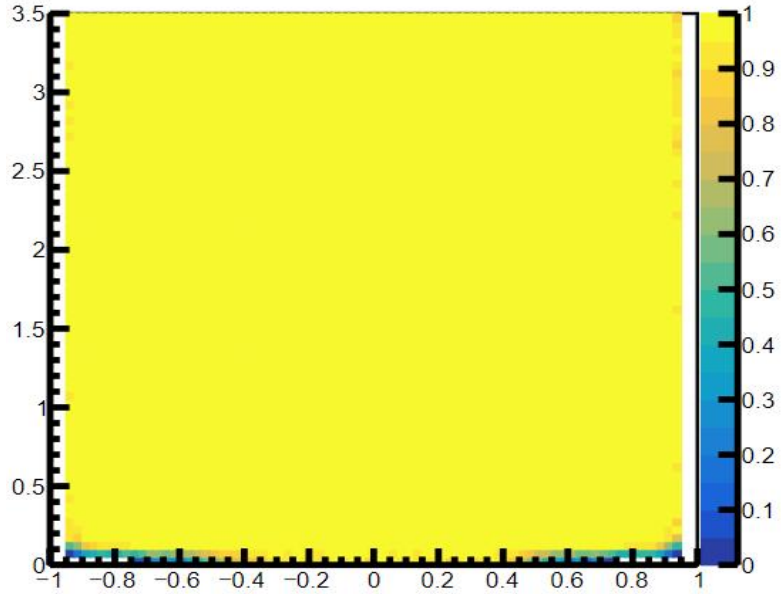

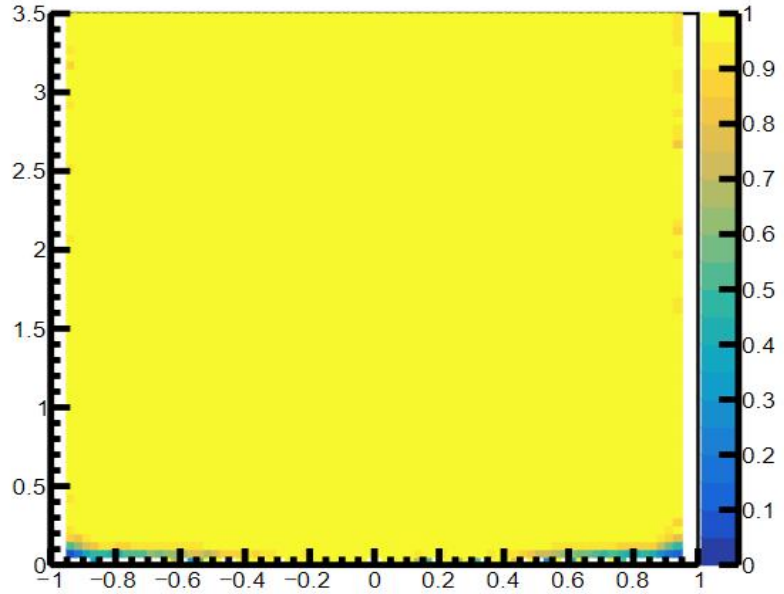

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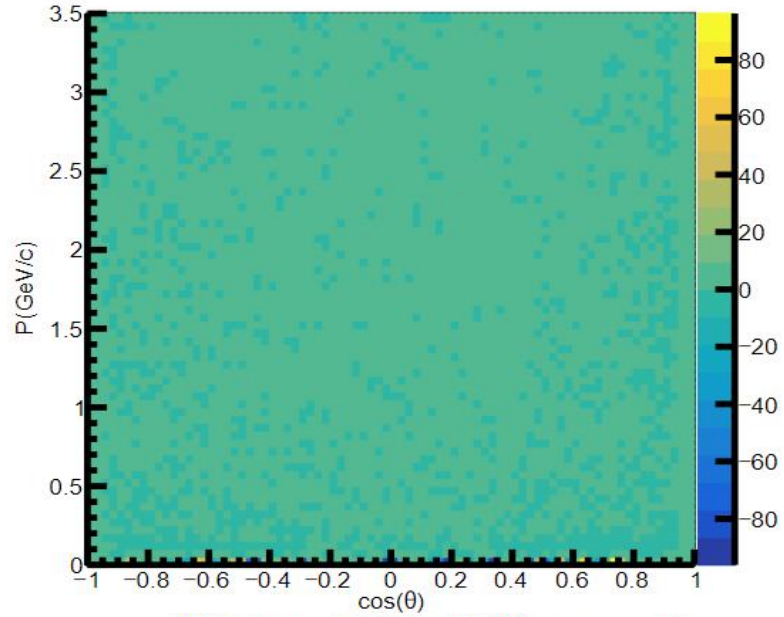

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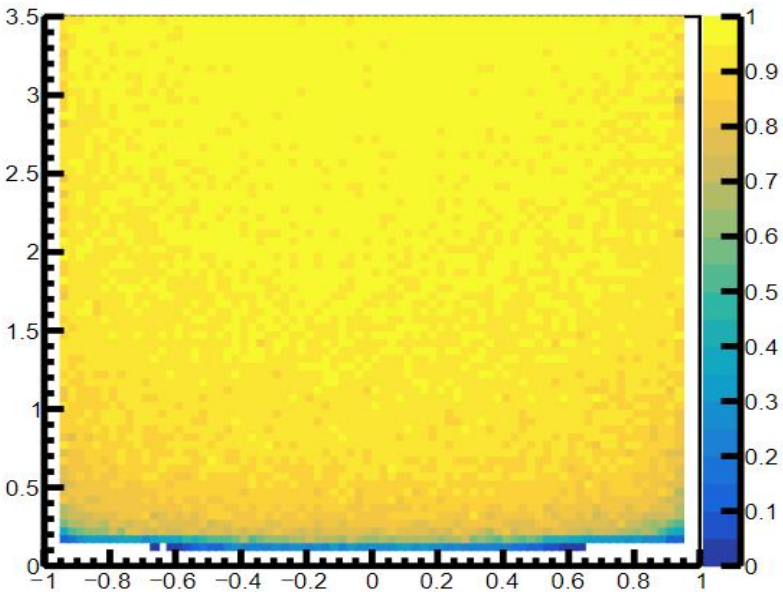

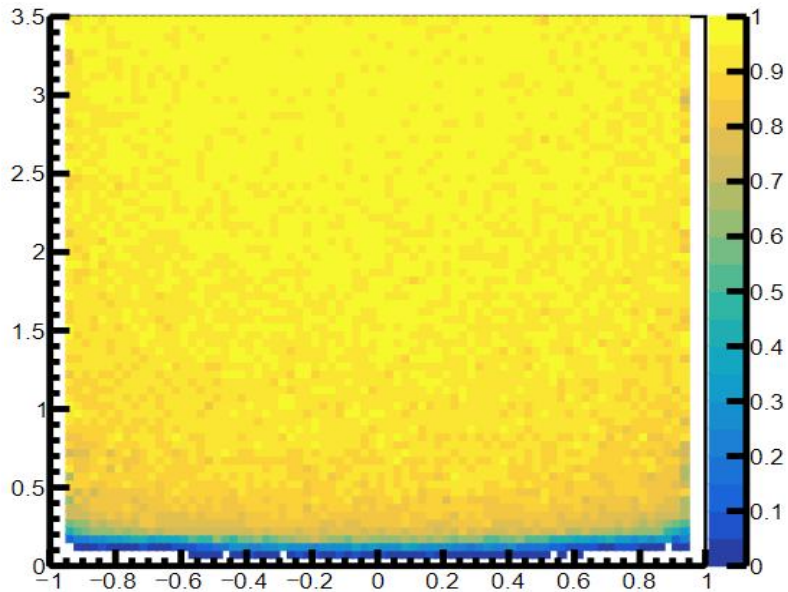

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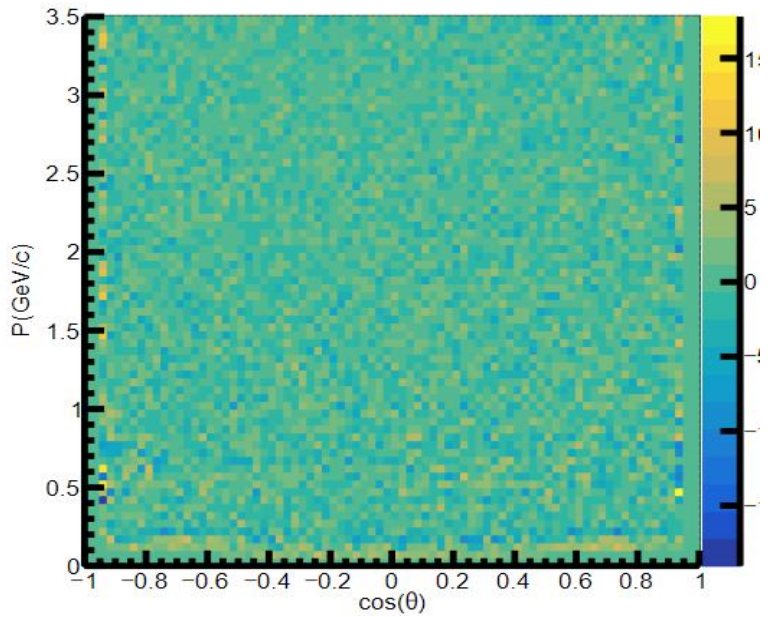

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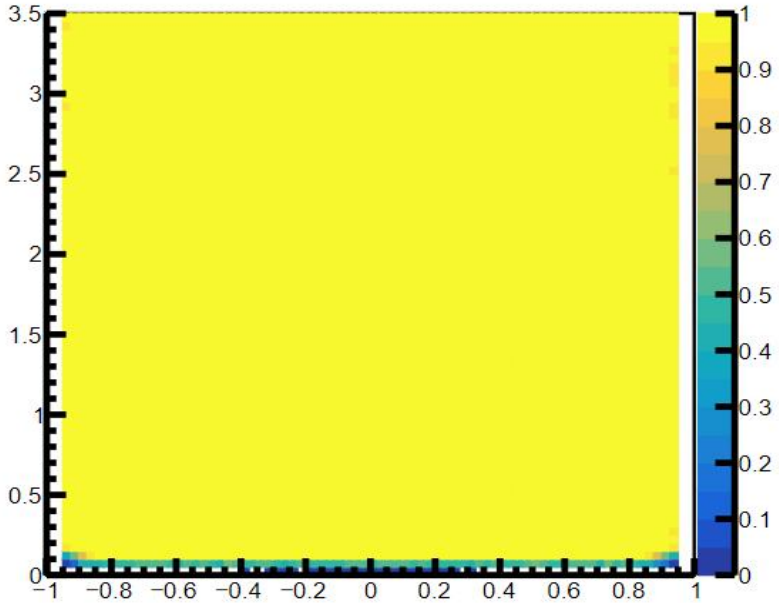

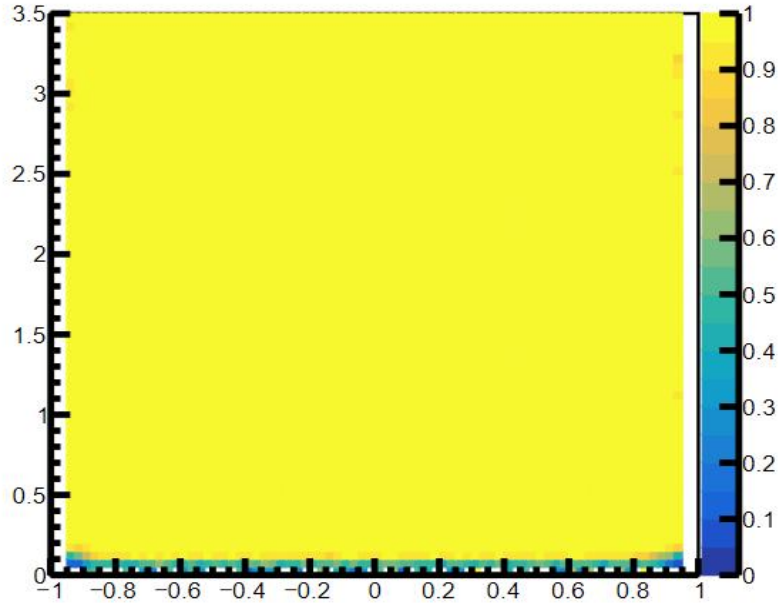

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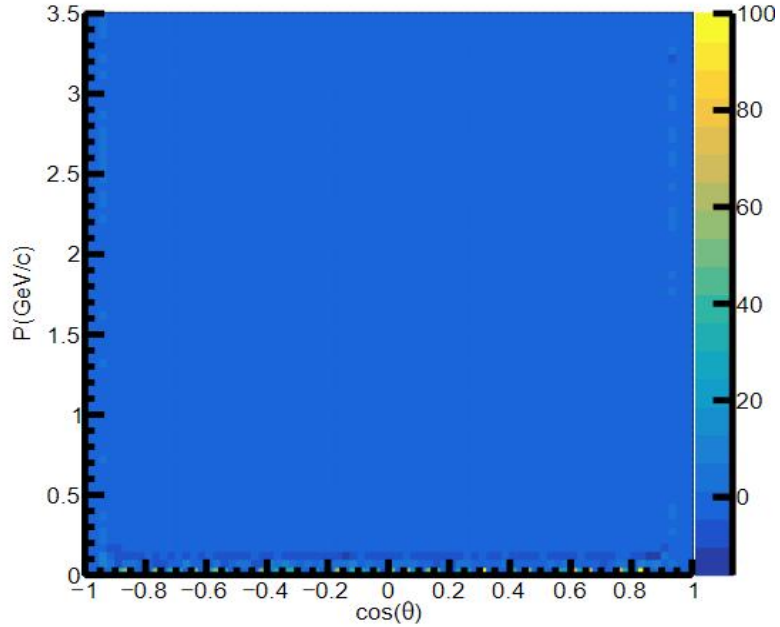

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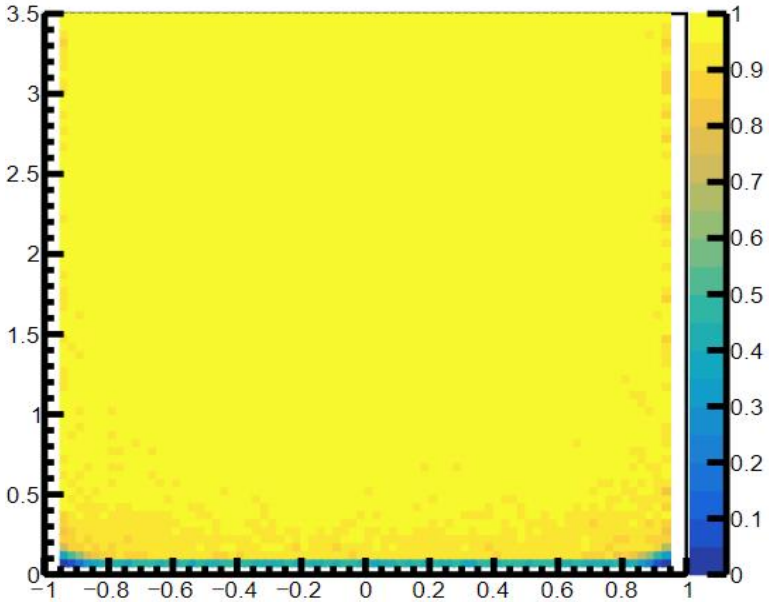

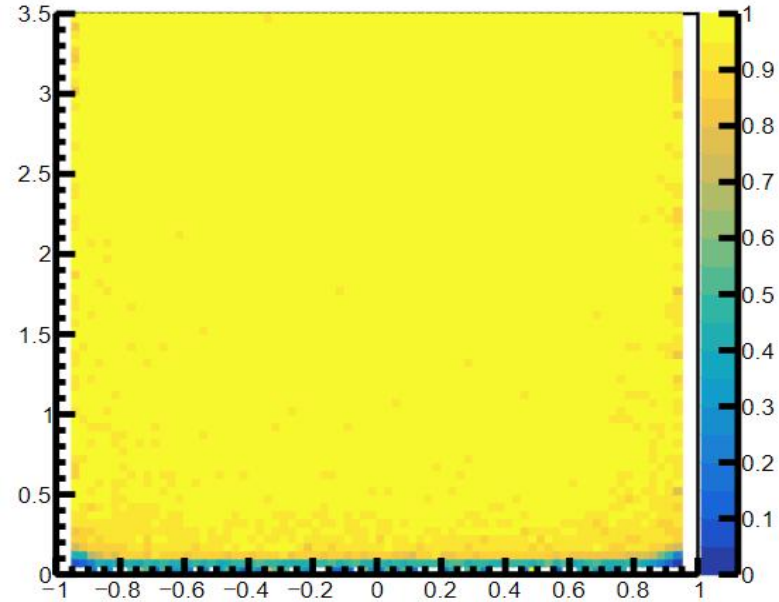

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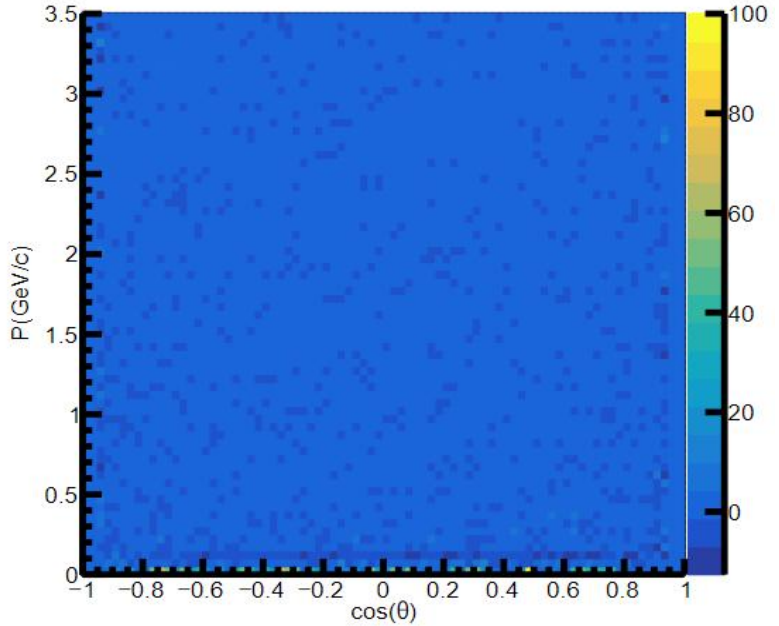

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