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PXD L1 only scenario

- tracking performances studies -

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Outlook

- Comparison between full PXD scenario and PXD layer1-only scenario
- 3 different background conditions simulated:
  - phase 2.1 background (*)
  - phase 3 nominal background
  - no background
- PXD data reduction simulated, too
- Standard tracking reconstruction code without any attempt of optimization

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- Comparison between full PXD scenario and PXD layer1-only scenario
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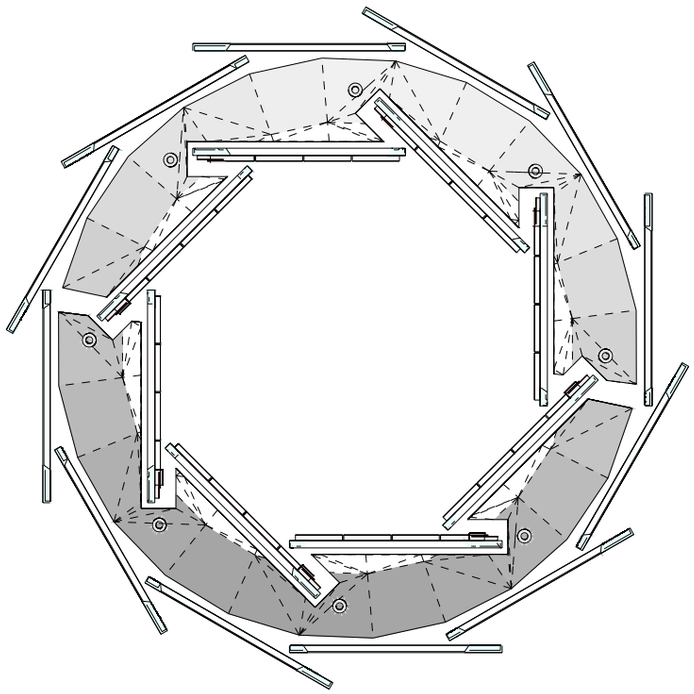
(*) background for the first two years of phase 3:

- phase 2 background multiplied by a factor 5
- phase 3 luminosity background scaled down by a factor 10
- /group/belle2/BGcampaigns7g4sim/phase2-1_coll_collisions_2_forMixing/merged/

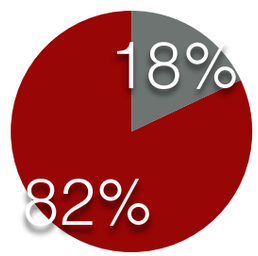
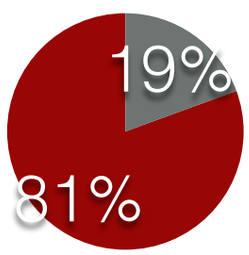
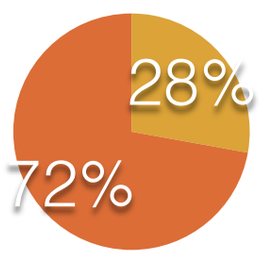
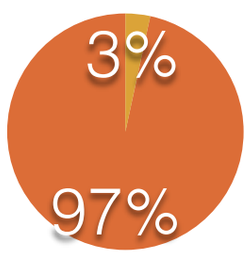
Procedure

- Most of PXD L2 removed from GEANT4 detector model
- Hits in L2 removed in the PXDClusterizer
- Changes implemented in branch origin/feature/BII-3715-track-performances-evaluation-with-a-reduced-pxd
- Master cc962c2dac used for the comparison
- 10K generic Y(4S) events

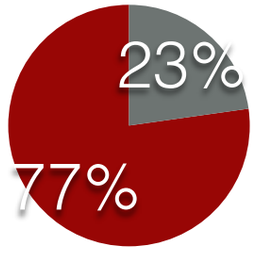
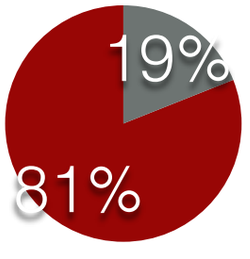
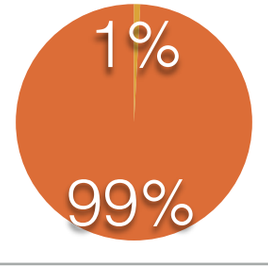


Hit assignment

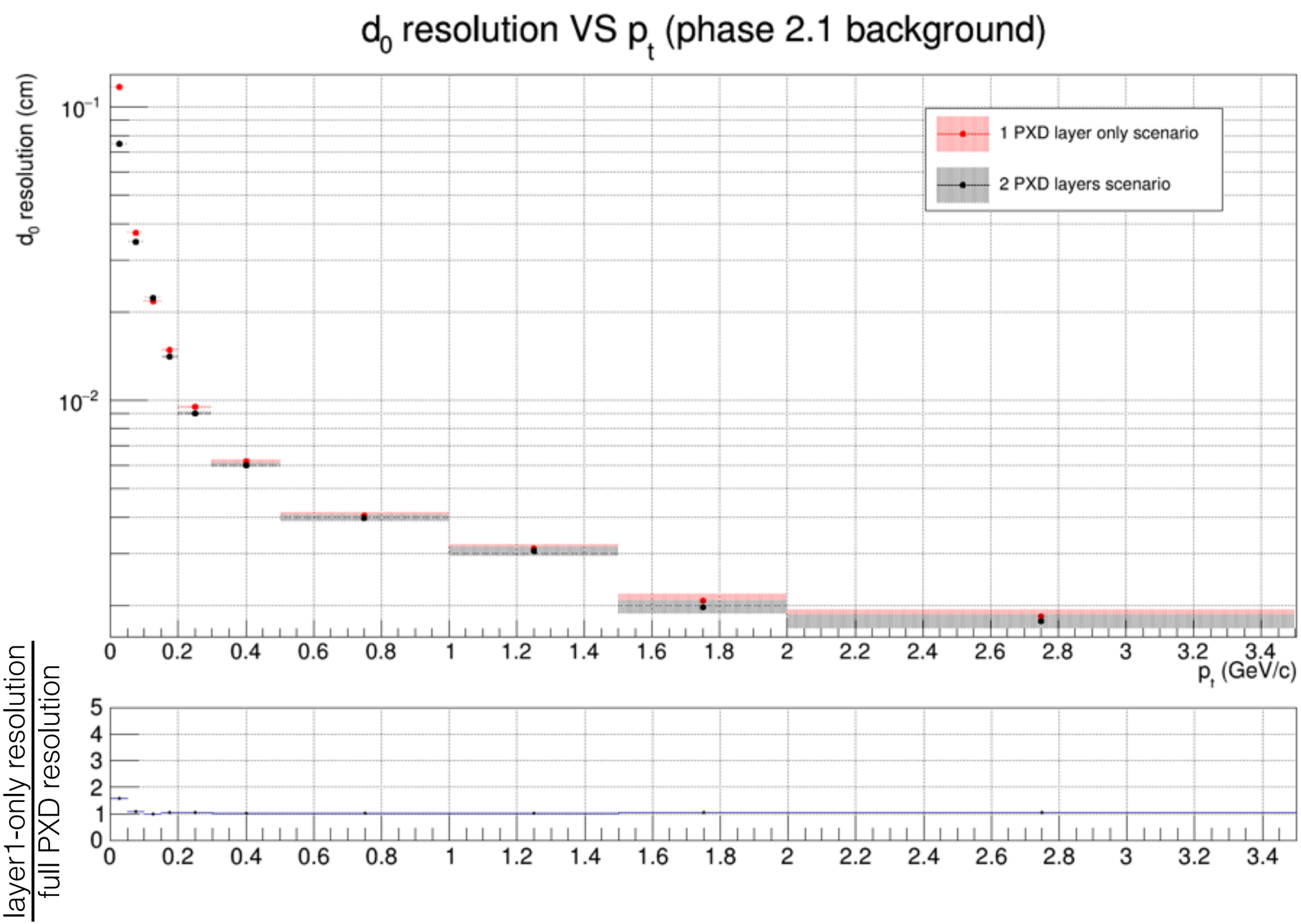
phase 3 nominal BG

	L1 only		full PXD	
#tracks	97146		96922	
#tracks with PXD	79671		78096	
#tracks with True PXD	57491		75456	
#tracks with False PXD	22180		2640	

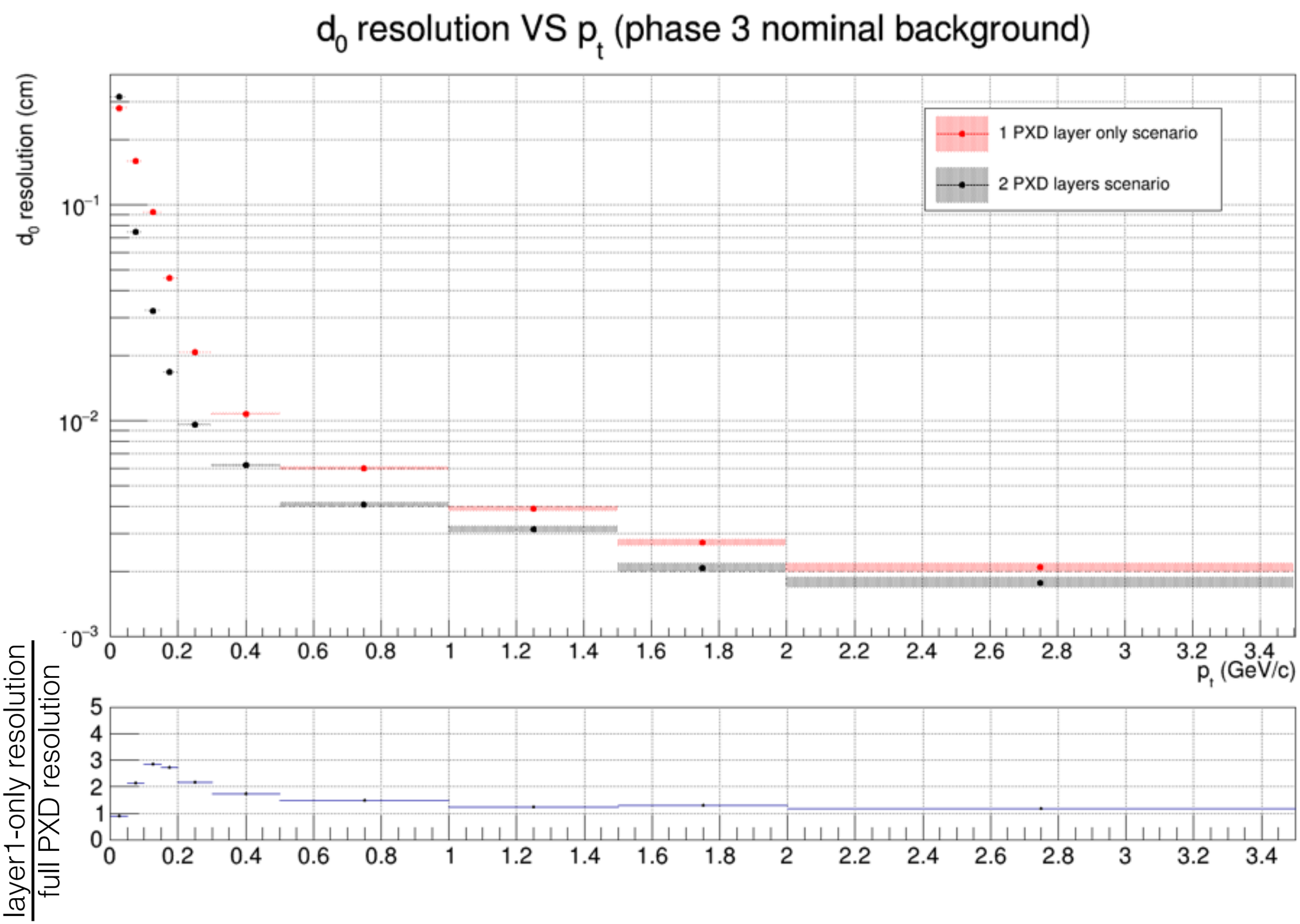
phase 2.1 BG

	L1 only		full PXD	
#tracks	97119		97585	
#tracks with PXD	75008		79068	
#tracks with True PXD	74348		78764	
#tracks with False PXD	660		304	

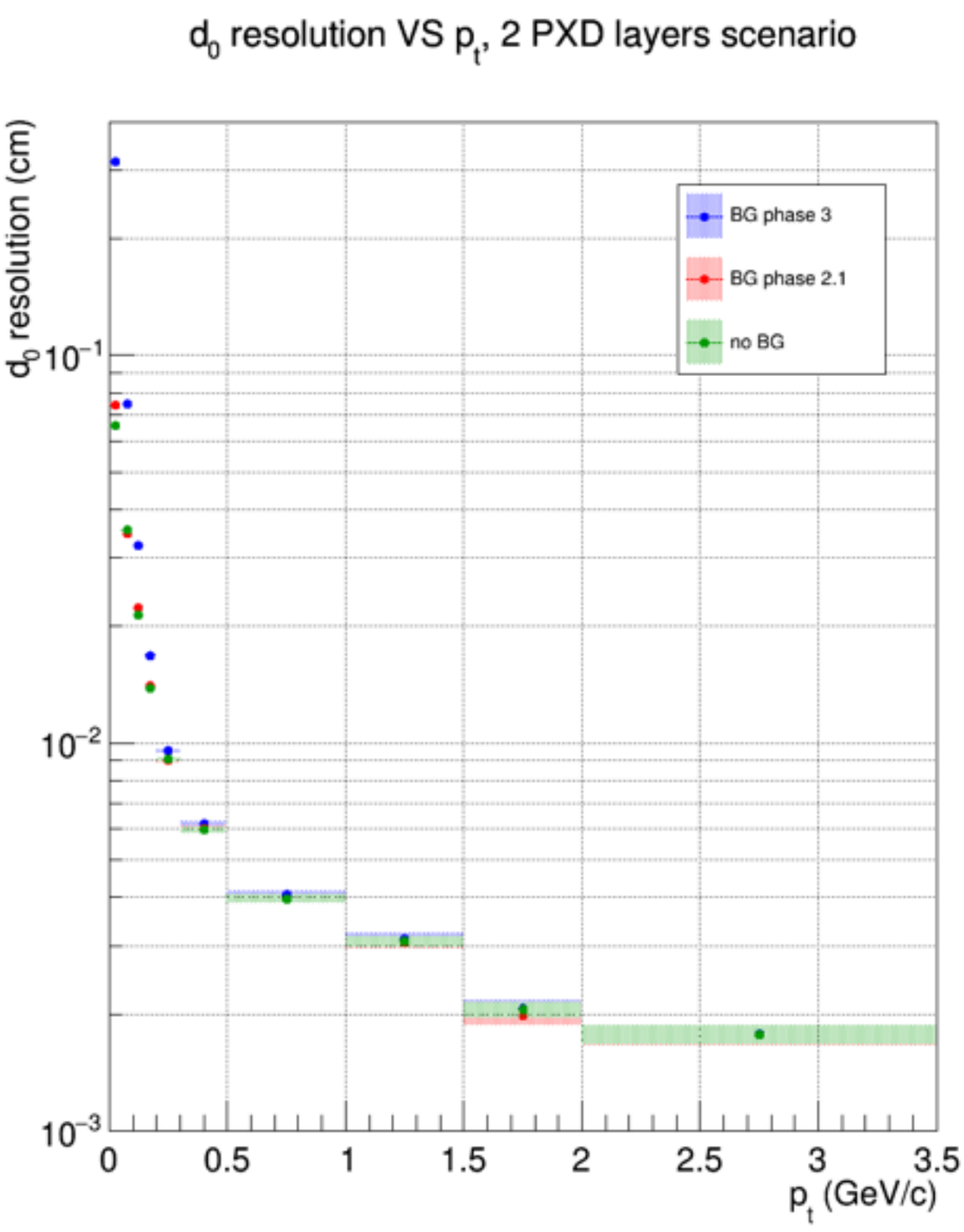
Phase 2.1 background - d_0

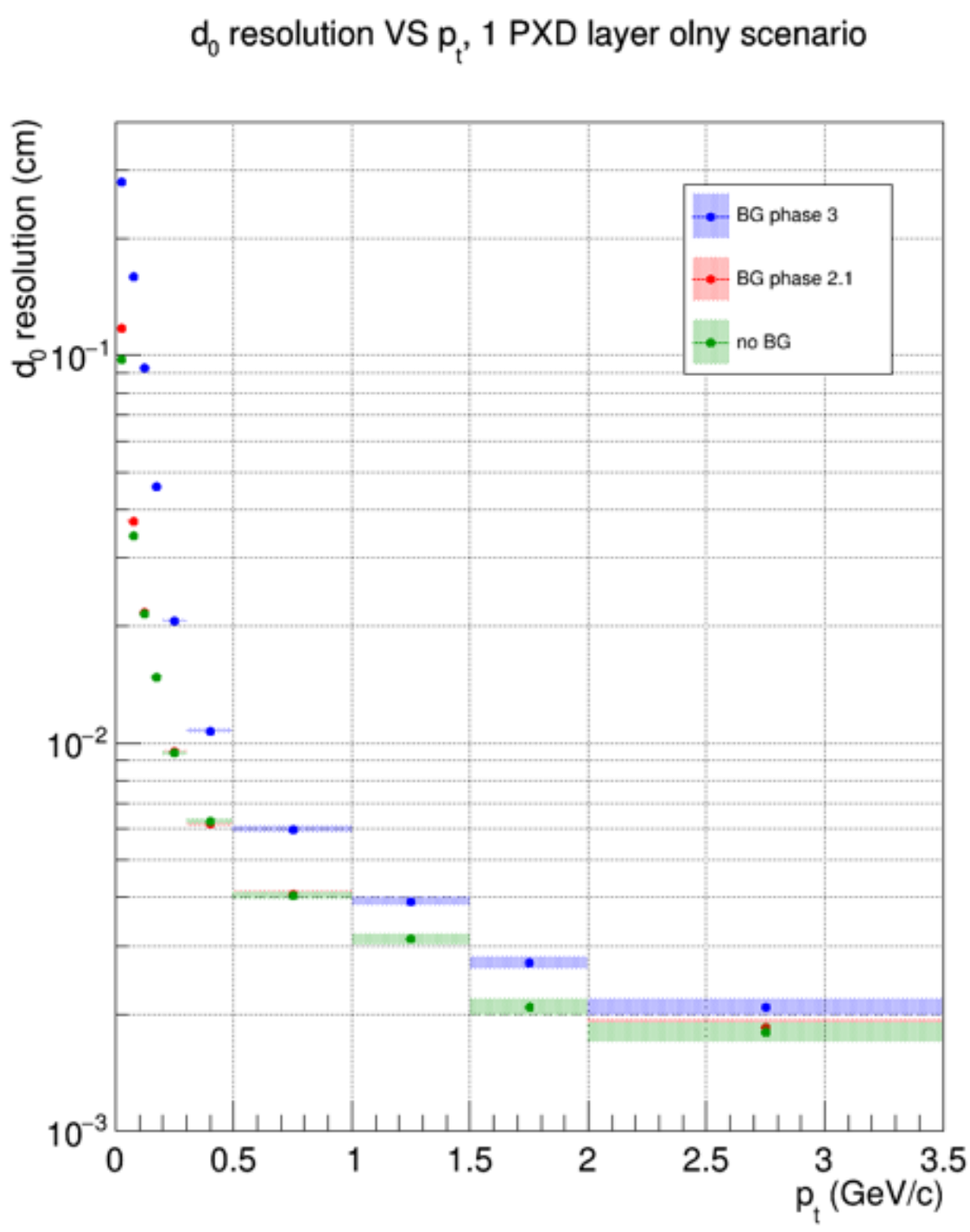


Phase 3 nominal background - d_0

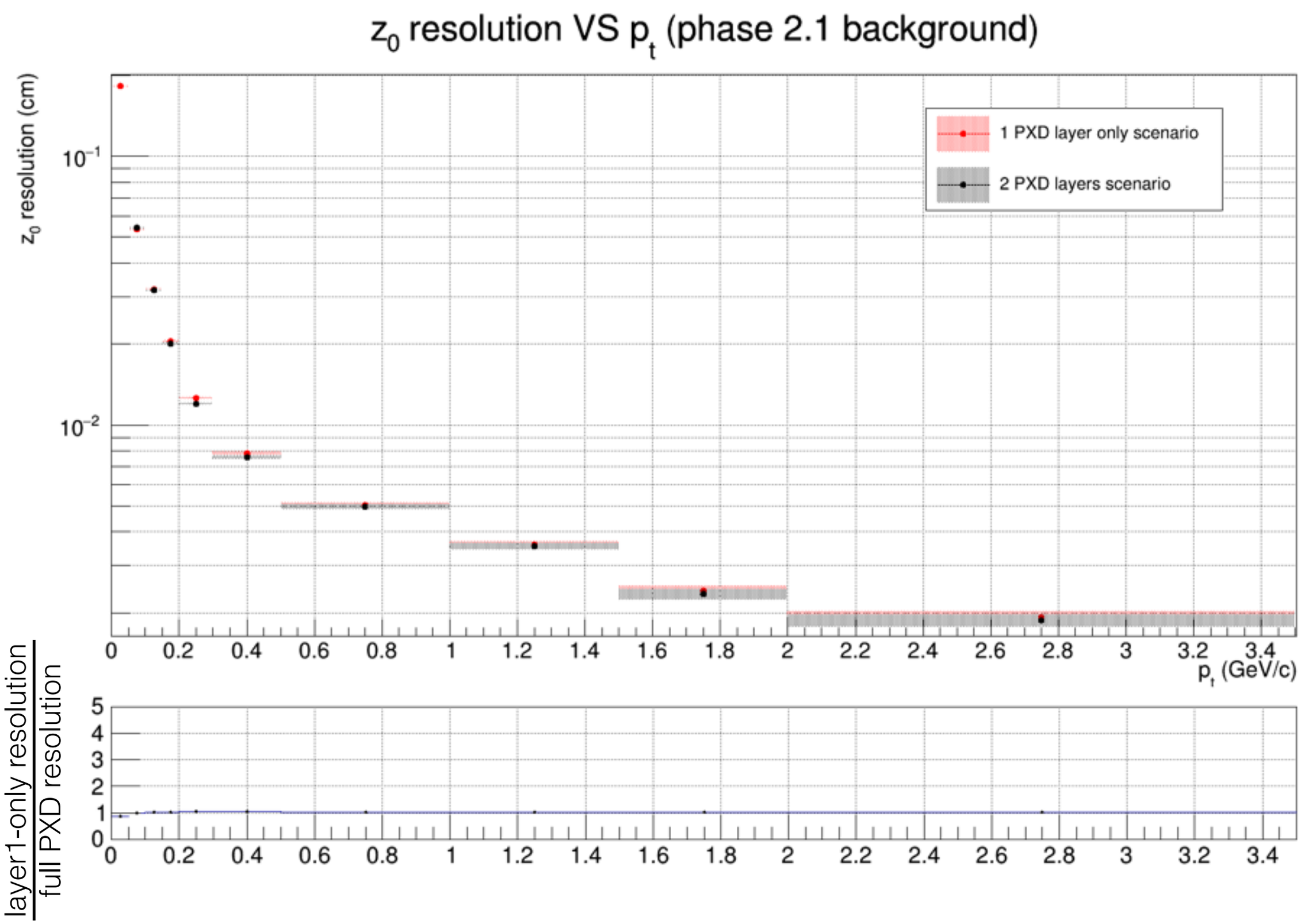


Different background comparison - d_0

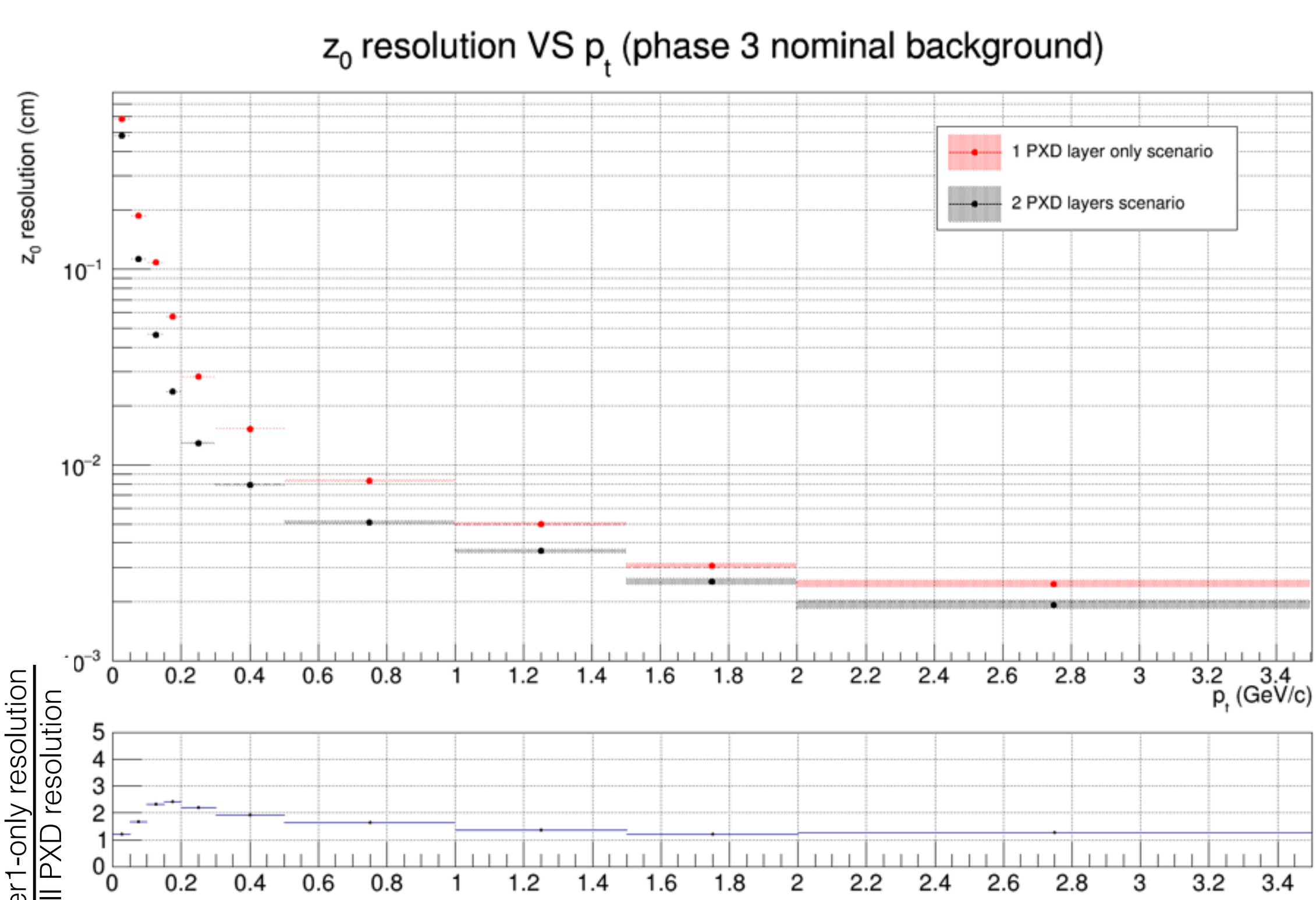




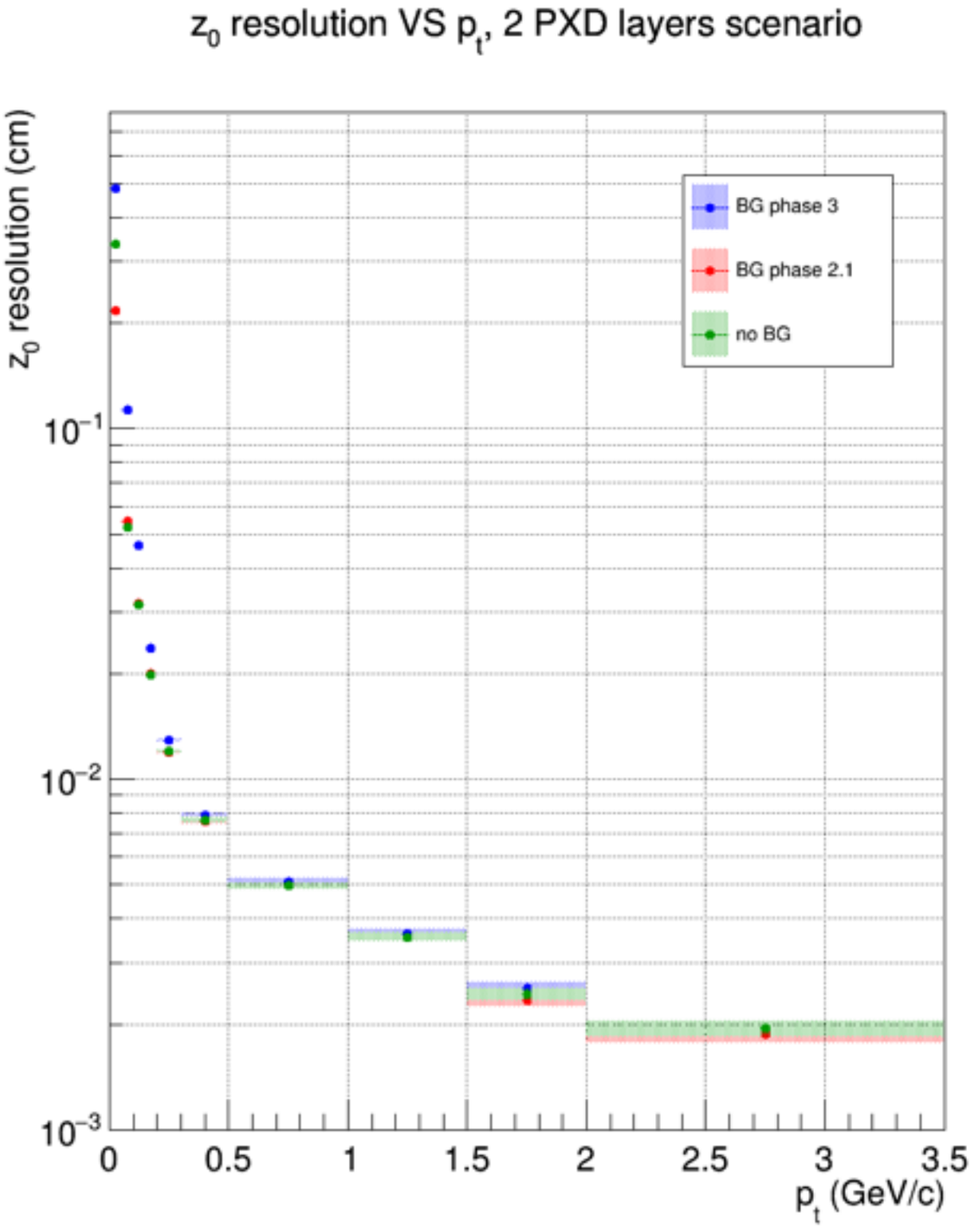
Phase 2.1 background - z_0

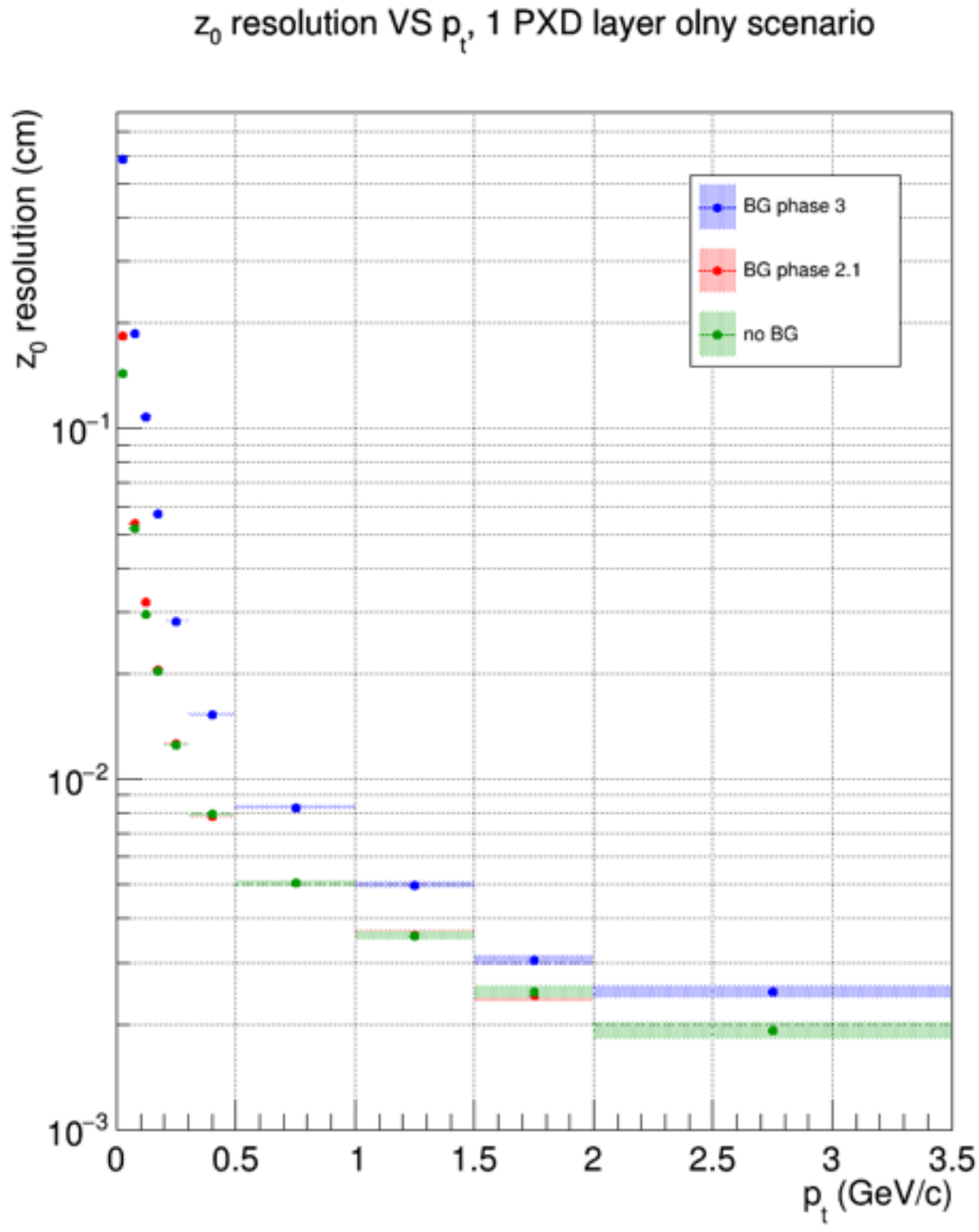


Phase 3 nominal background - z_0



Different background comparison - z_0

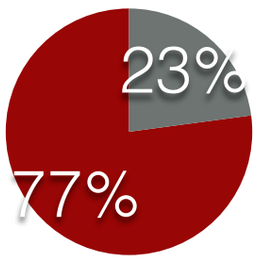
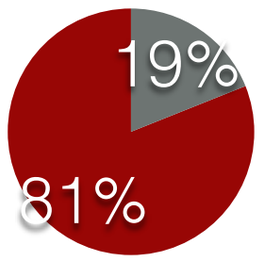




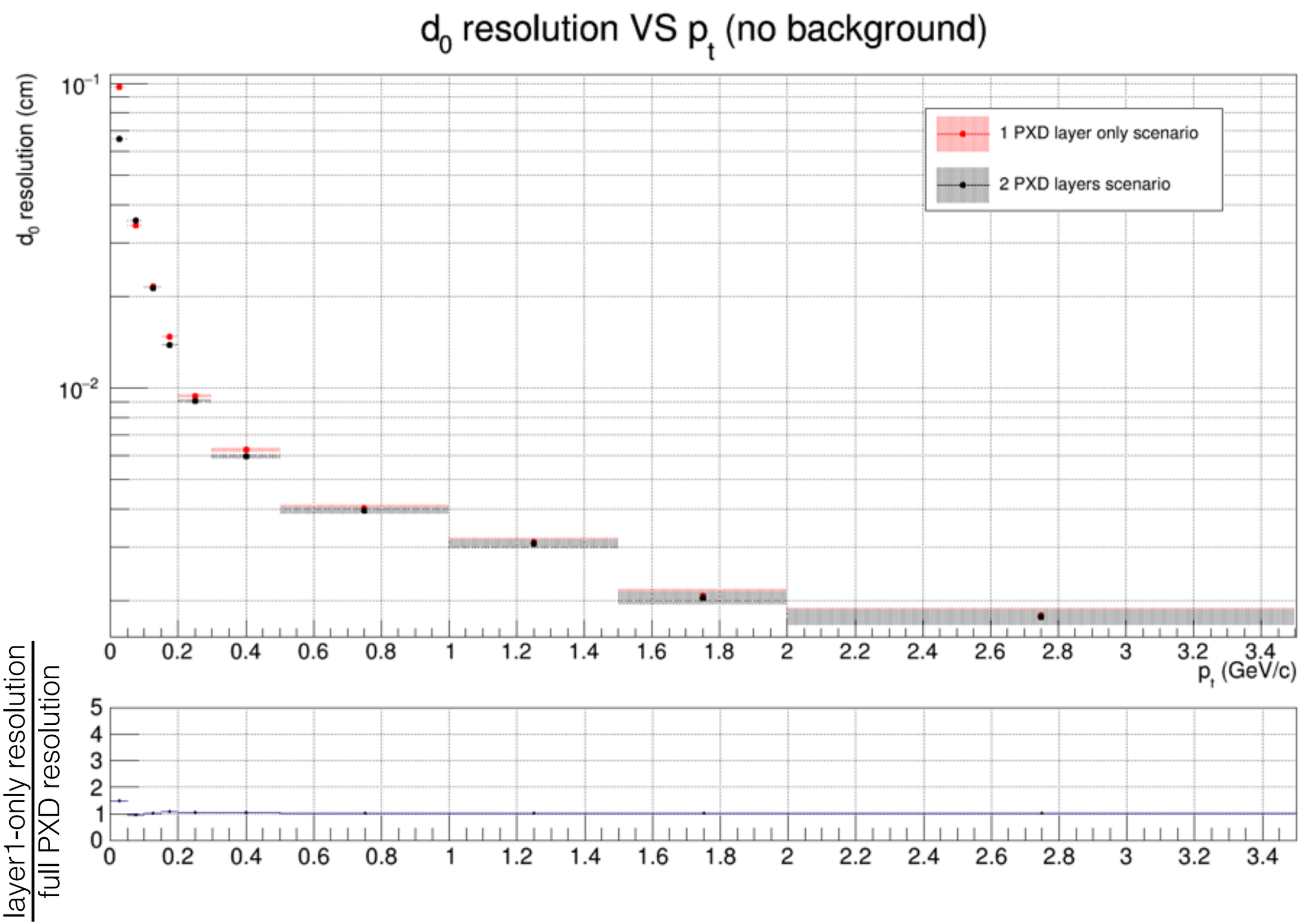
BACKUP

Hit assignment, no BG

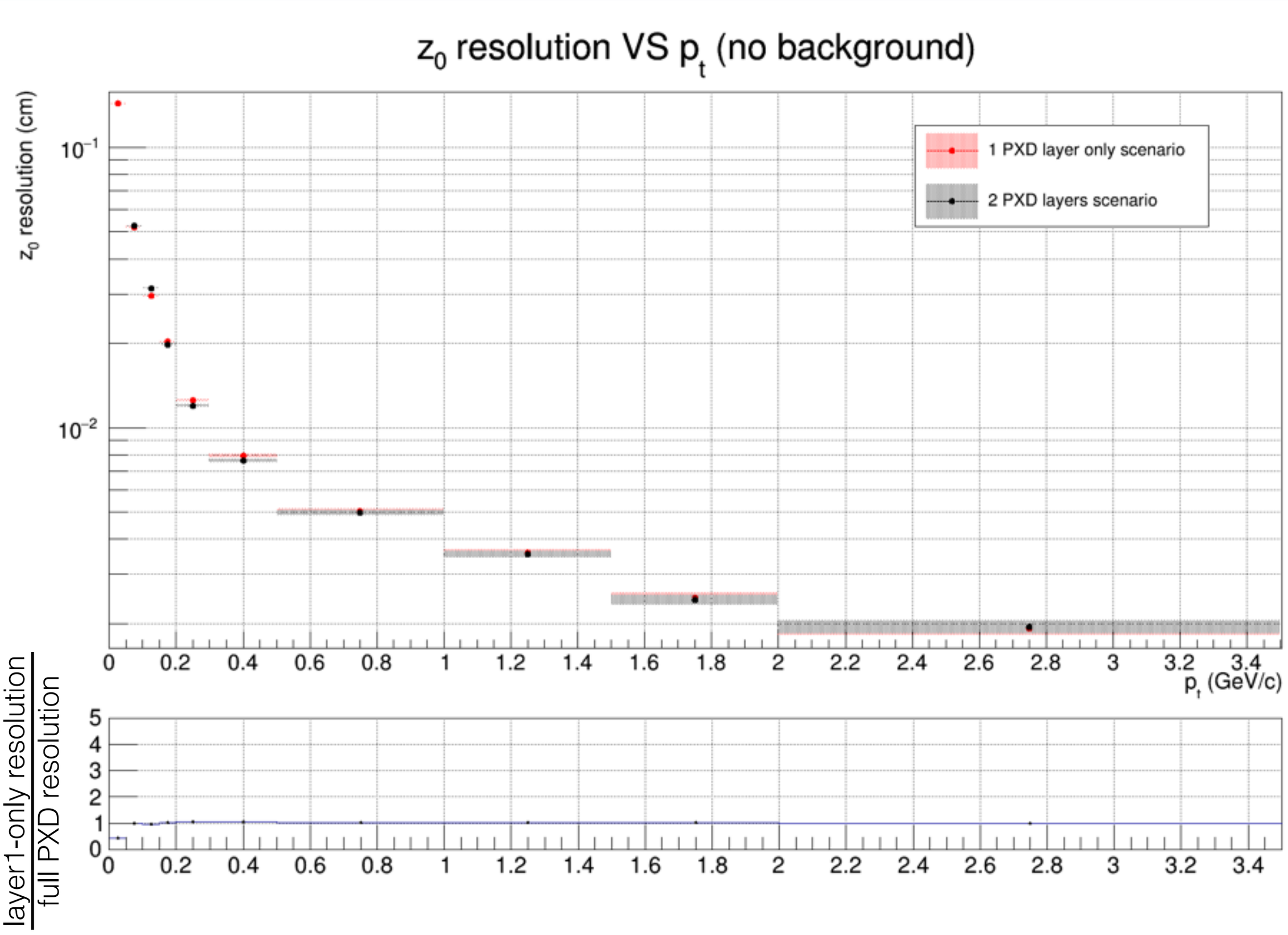
no background

	L1 only		full PXD	
#tracks	97062		97693	
#tracks with PXD	74851		79181	
#tracks with True PXD	74498		78933	
#tracks with False PXD	353		248	

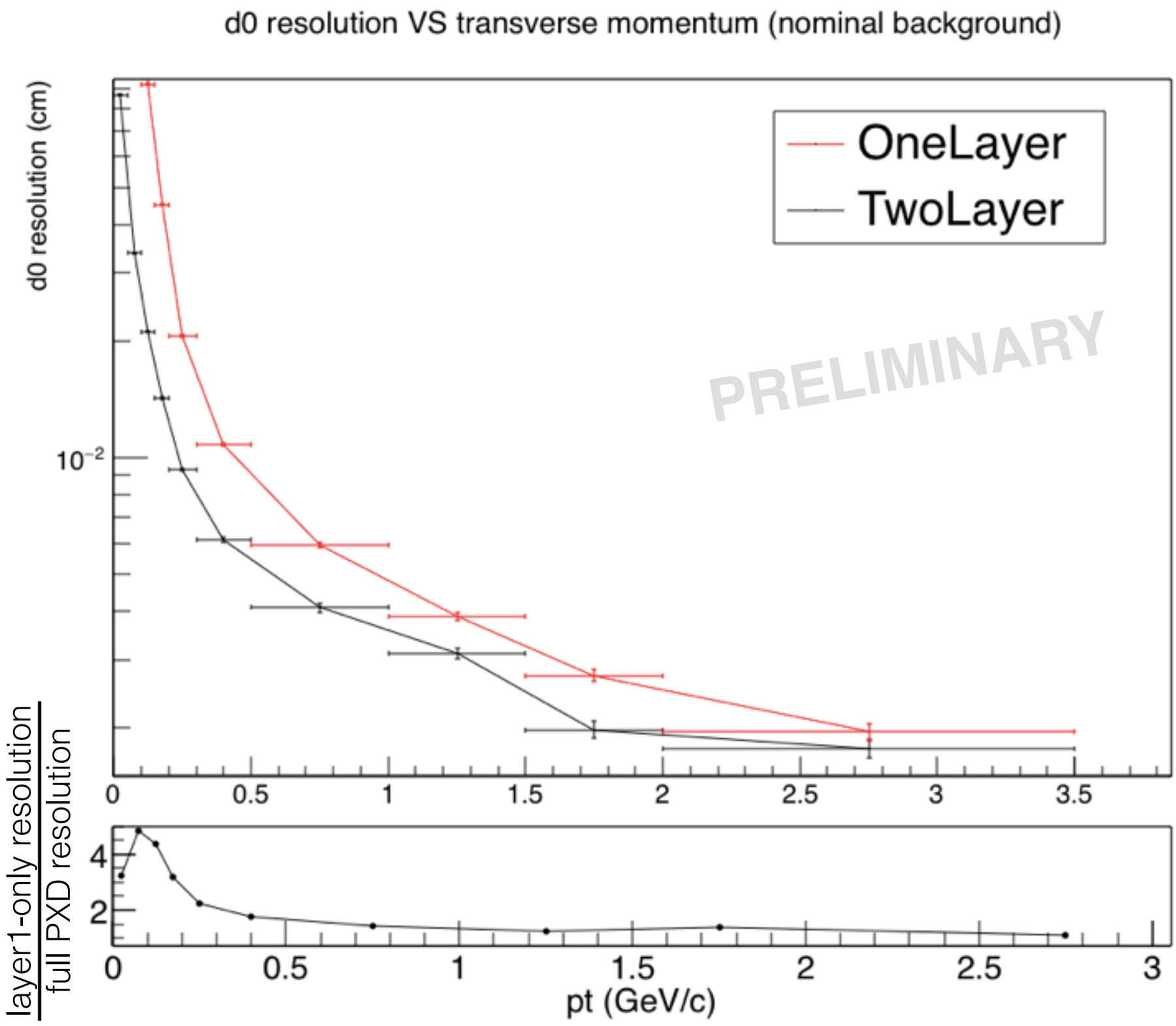
No background - d_0



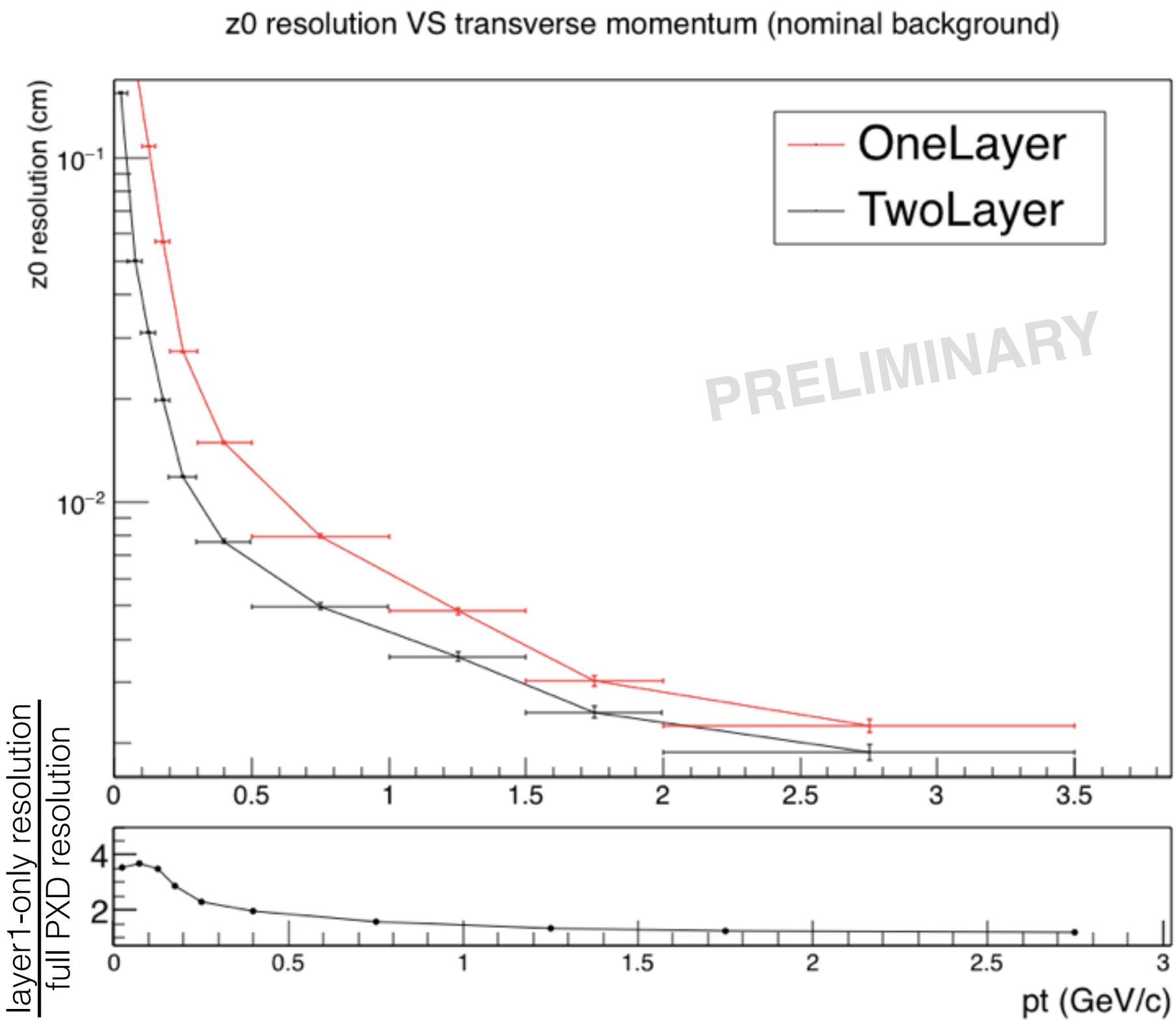
No background - z_0



d_0 resolution of tracks with at least 1PXDHit assigned



z_0 resolution of tracks with at least 1PXDHit assigned



Error estimation