Resolution plots, estimator and mean values

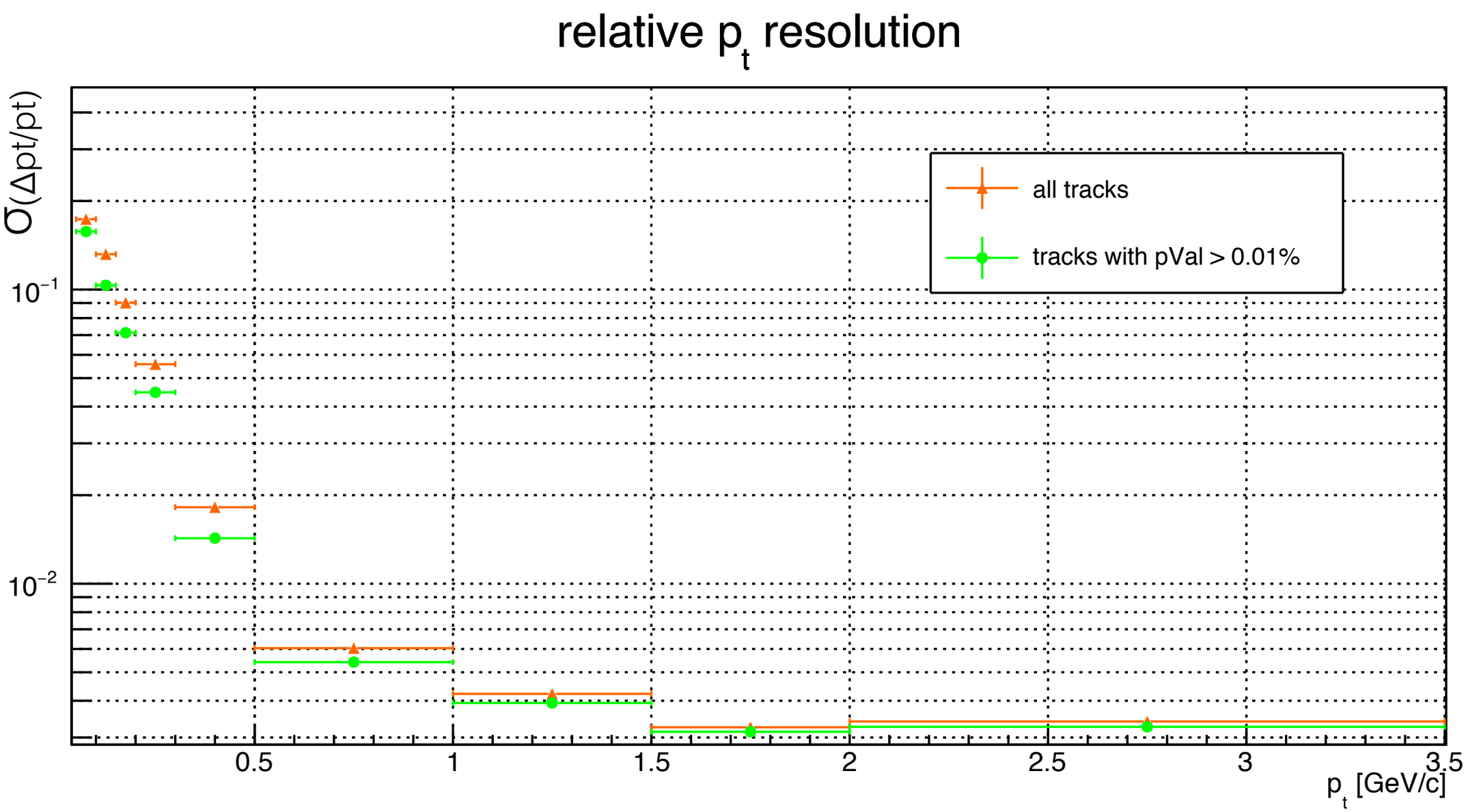
JOHANNES GUTENBERG UNIVERSITÄT MAINZ

Belle II

Outline

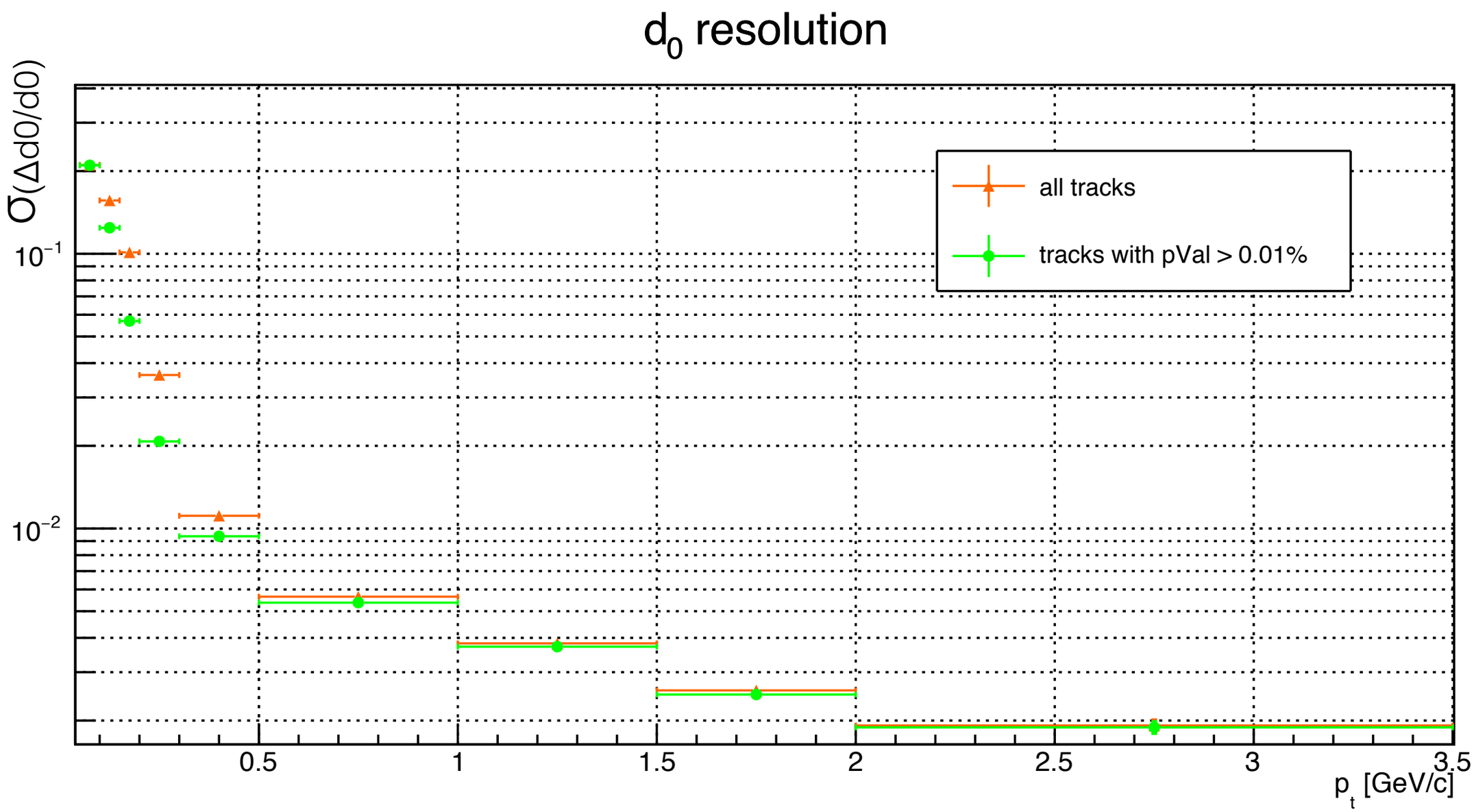
- resolution plots as a function of pt implemented in the TrackingPerformanceEvaluationModule
  (final decision on the estimator to be taken before commit it to the master)
- table of resolution and mean values (integrated over all pt values) to have a reference for next releases
  - question related

pt resolution

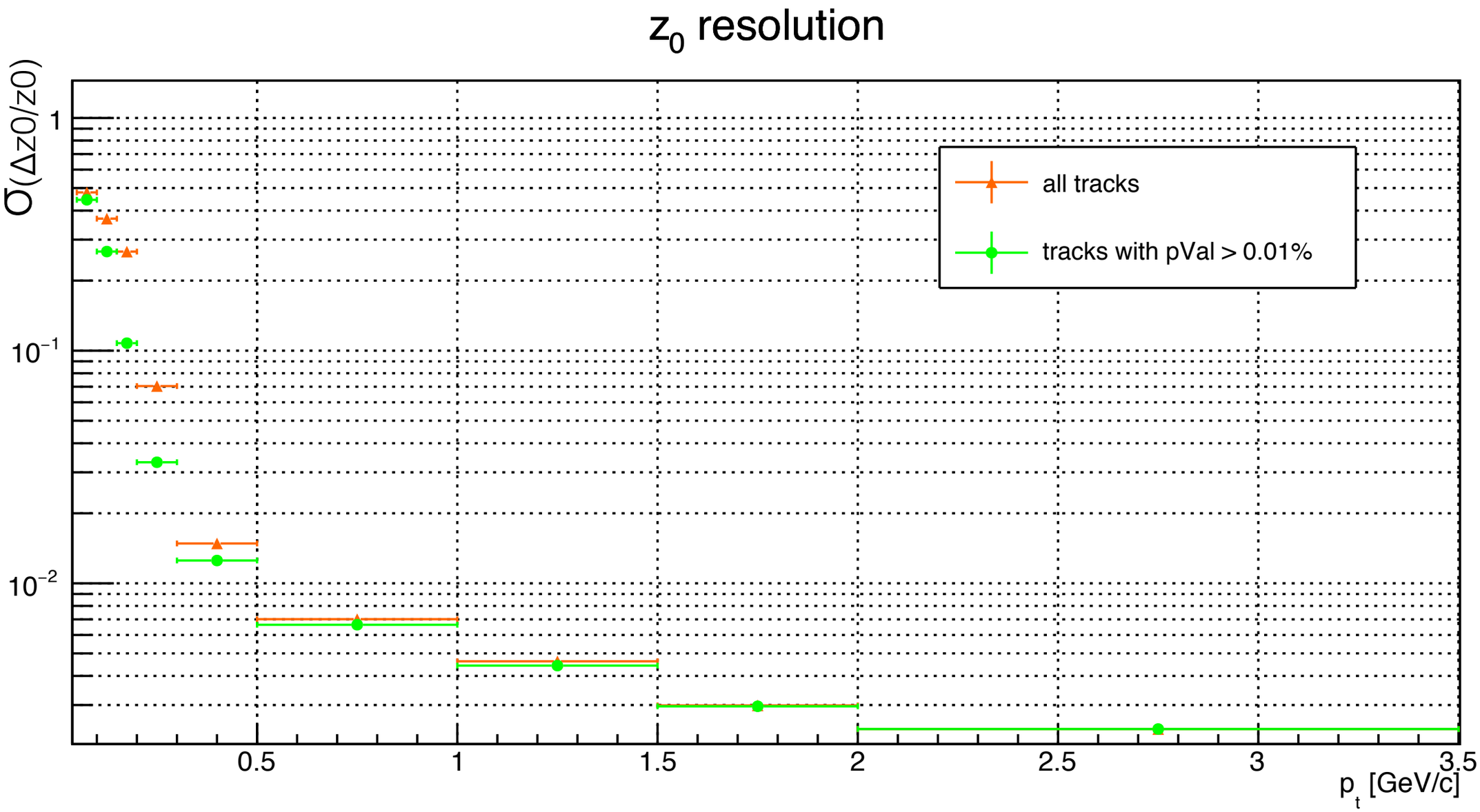


- resolution estimator: (68th percentile / 2)

d0 resolution



z0 resolution

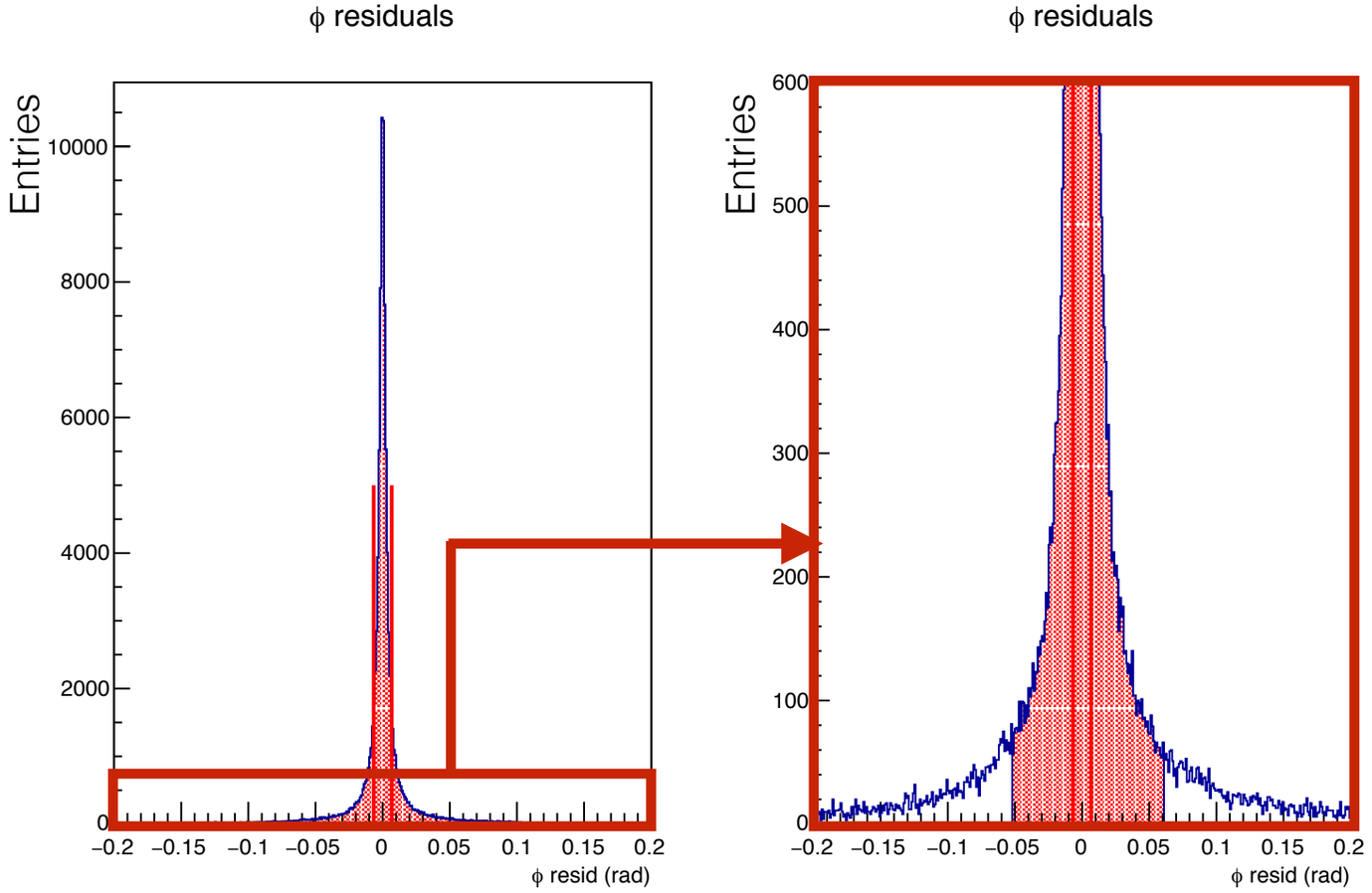


residuals distributions

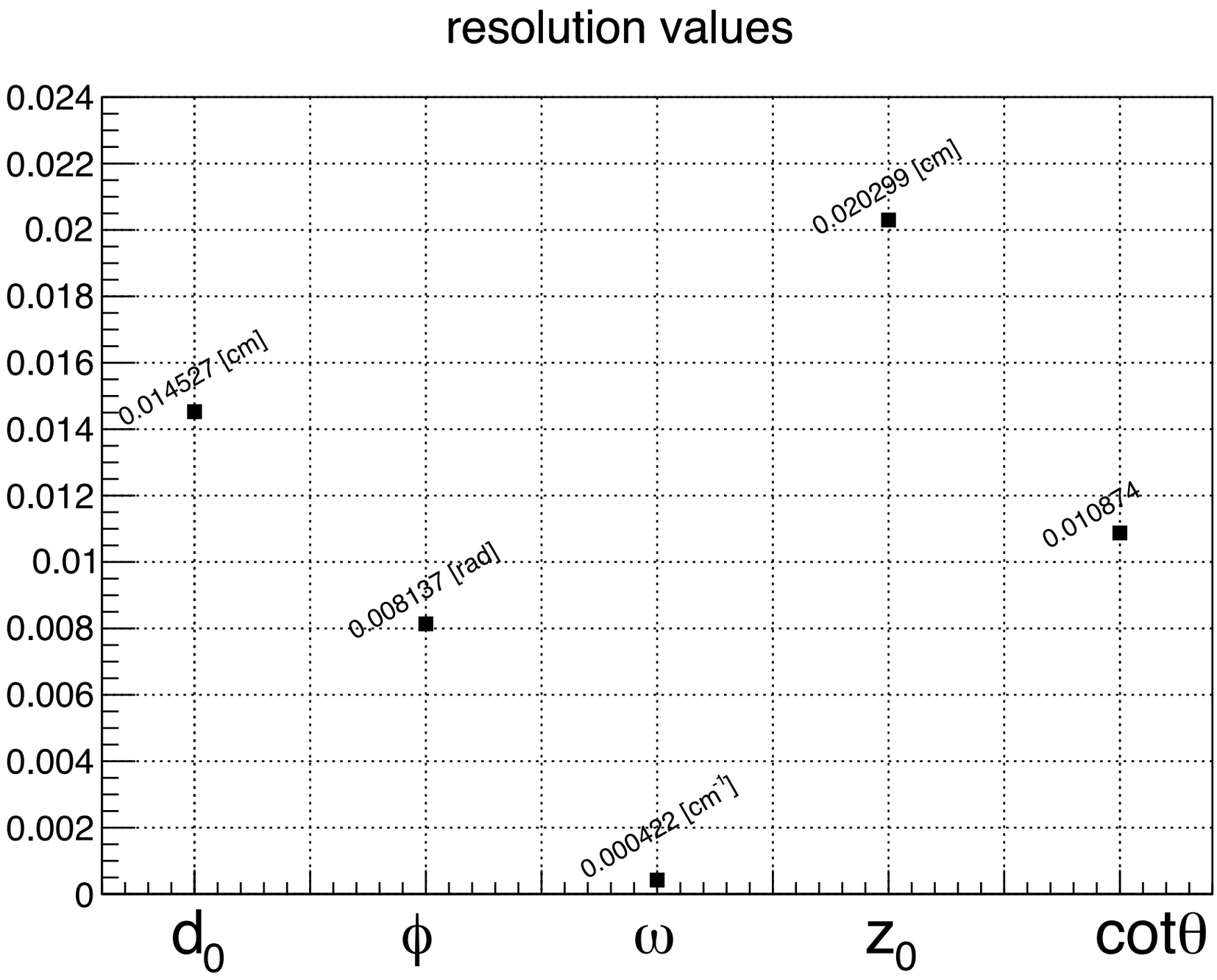
- table with resolution and mean values (integrated over all pt values)
- absolute residuals:

  x res = x_{rec} - x_{MC}, x = (d0, Φ, ω, z0, cotθ, px, py, pz, x, y, z)
- resolution estimator: (68th percentile / 2)
- mean estimator: truncated mean (80%)

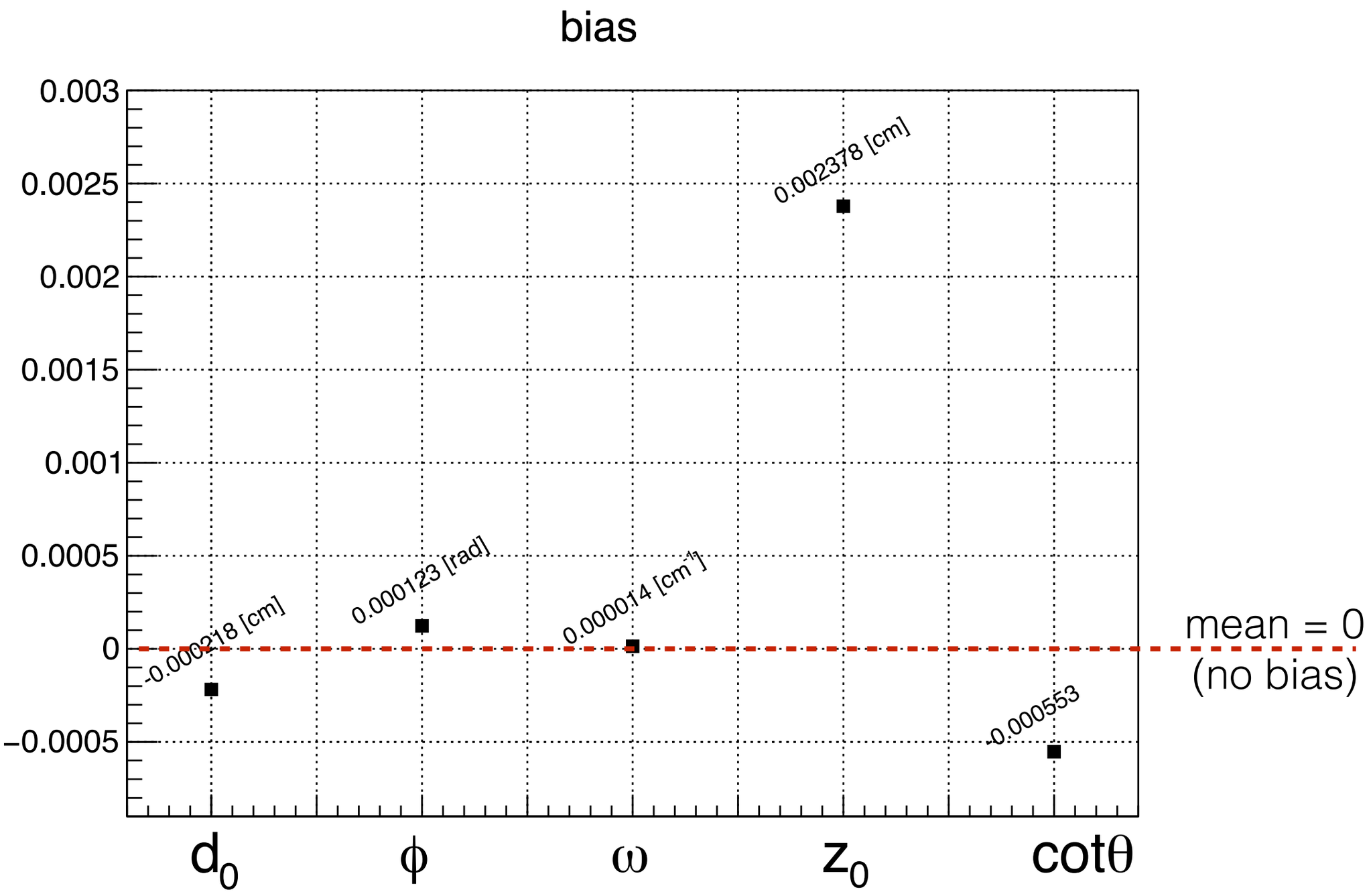
example of one distribution:



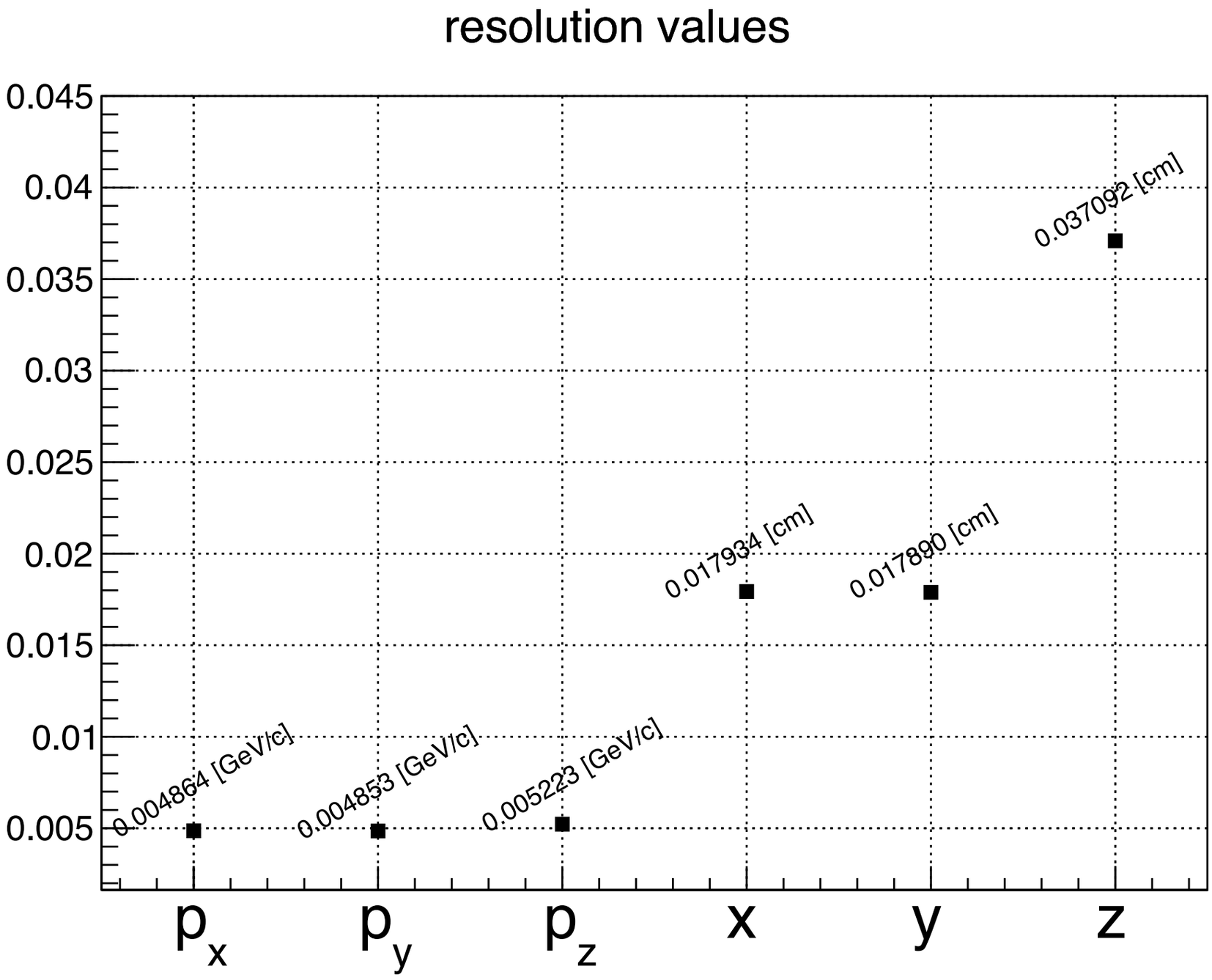
helix parameters resolution



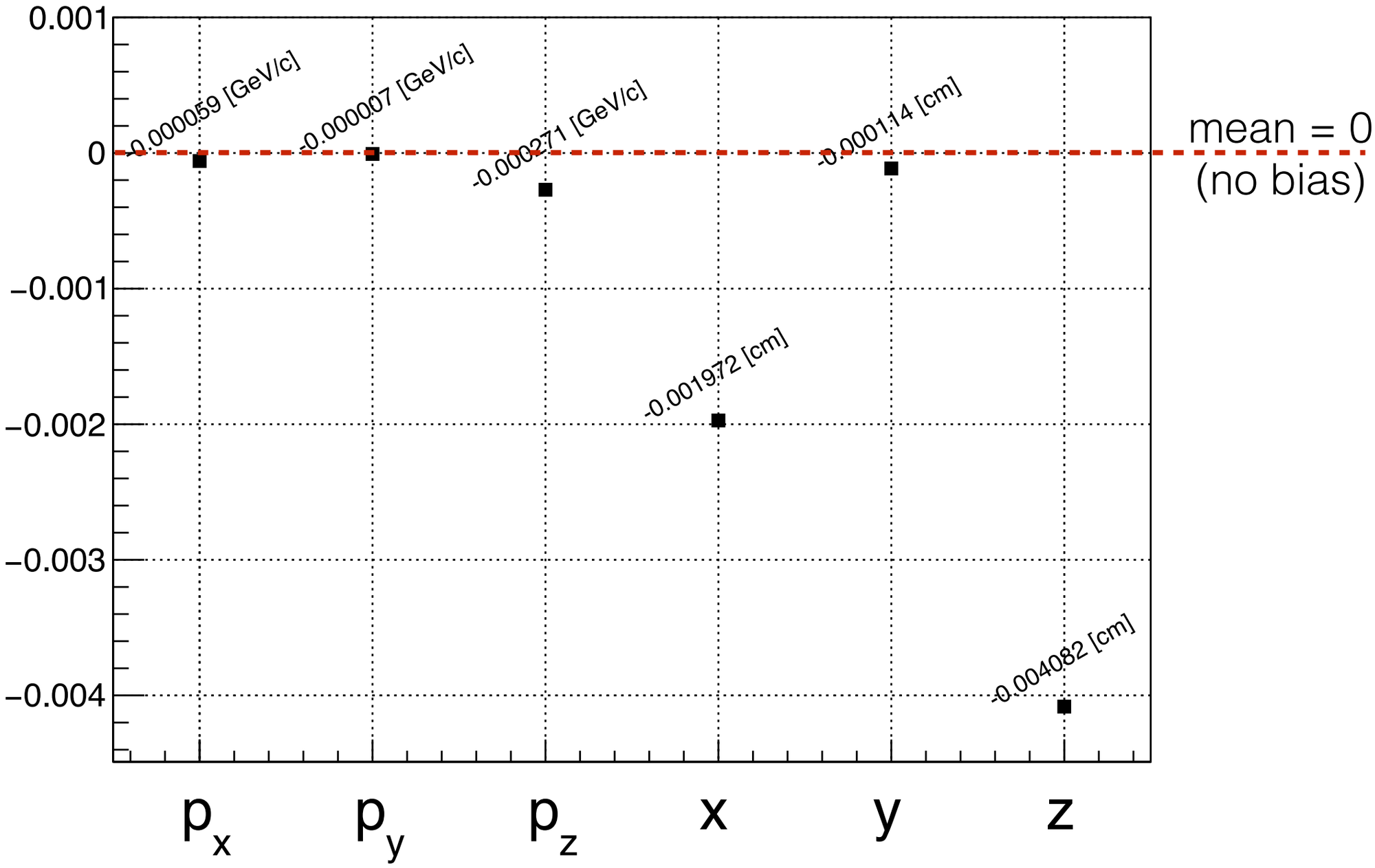
helix parameters mean values



momentum and position resolutions



momentum and position mean values



- px = 60 KeV , py = 7 KeV, pz = 270 KeV
- x = 2 mm, y = 0.1 mm, 4 mm

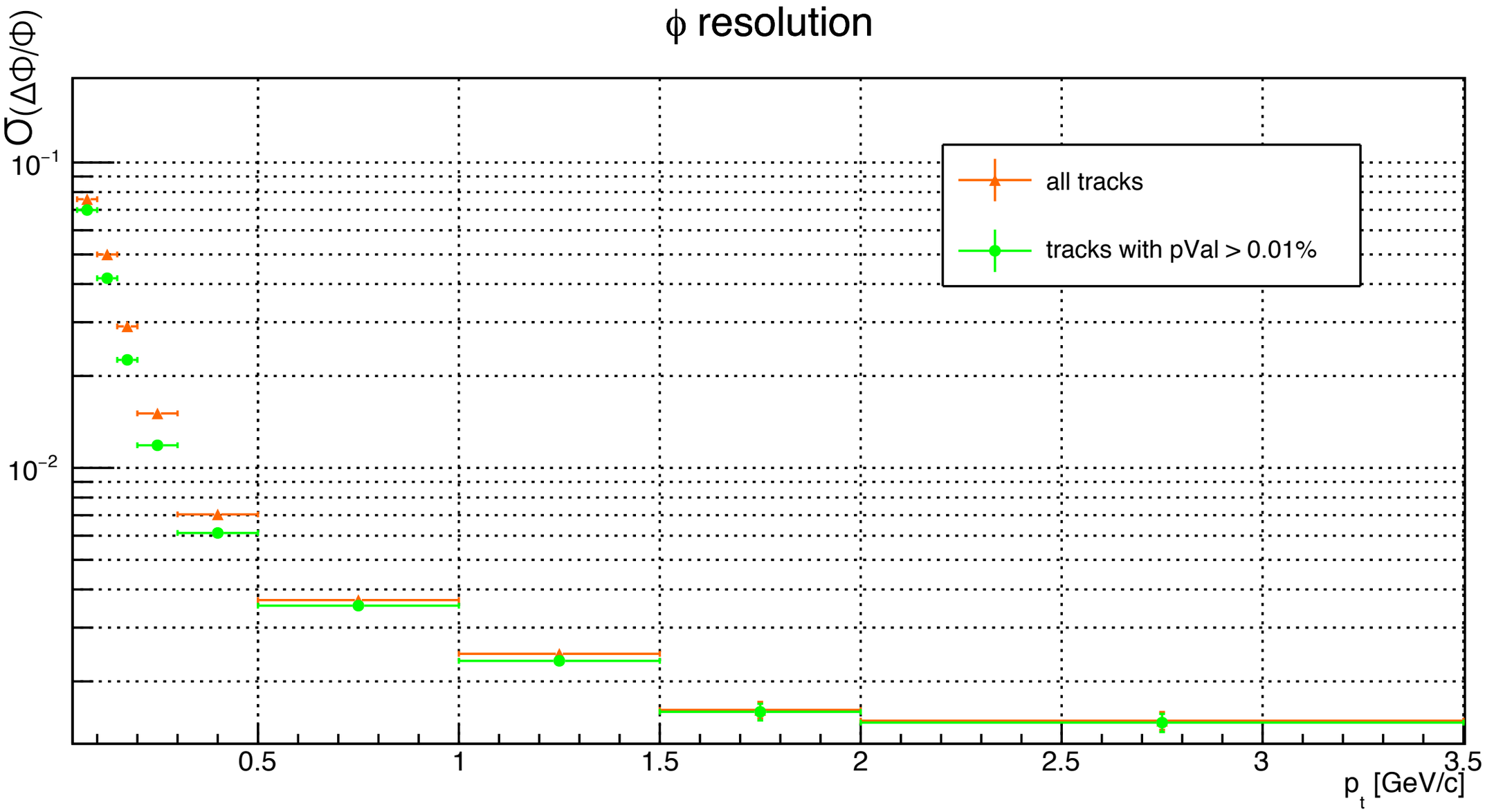
Question

- px is ca. 8.5 times bigger than py bias
- pz is ca 40 times bigger than py bias
- z bias is ca. 35 times bigger than y bias
- x bias is ca. 20 times bigger than y bias

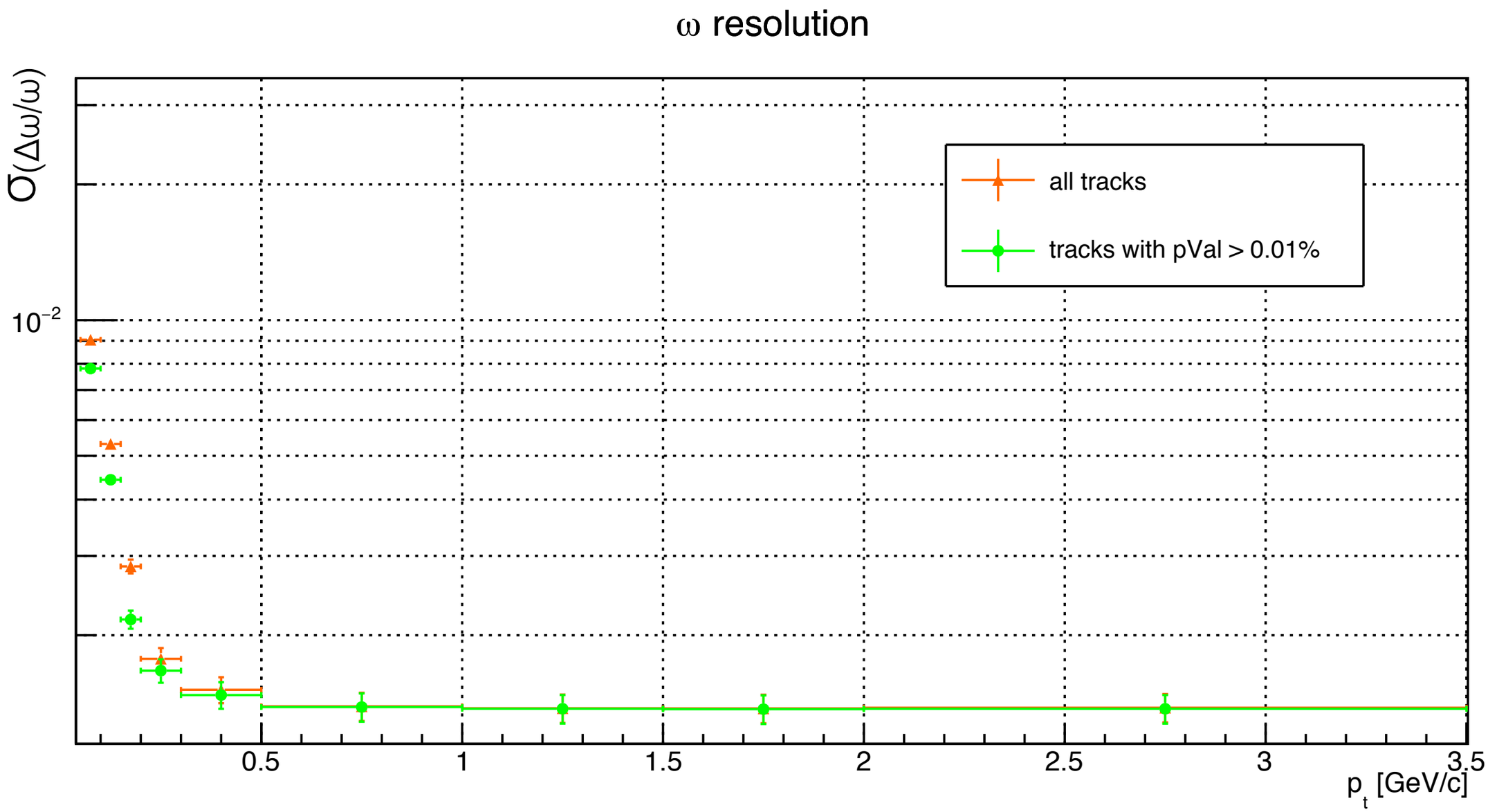
is it predicted?

backup

phi resolution



omega resolution



cotθ resolution