V0Finder

preliminary studies
& future plans

prerelease-01-00-00b

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Belle II

Outline

- Tracking Performance of Charged Particles
  - preliminary efficiency studies based on prerelease-01-00-00b
  - pt resolution and resolution estimator
  - ongoing / plans

- V0
  - preliminary efficiency studies based on prerelease-01-00-00b
  - ongoing / plans

What is new for release-01-00-00

- Ks, photons, Lambda, antiLambda object saved
- save only V0 objects with vertex outside the beam pipe

  (R > 1 cm)
- V0 vertex for different V0 hypotheses (when available) fitted

  with the correct daughter track hypotheses

- (cut on X2 of the vertex fit, unchanged)

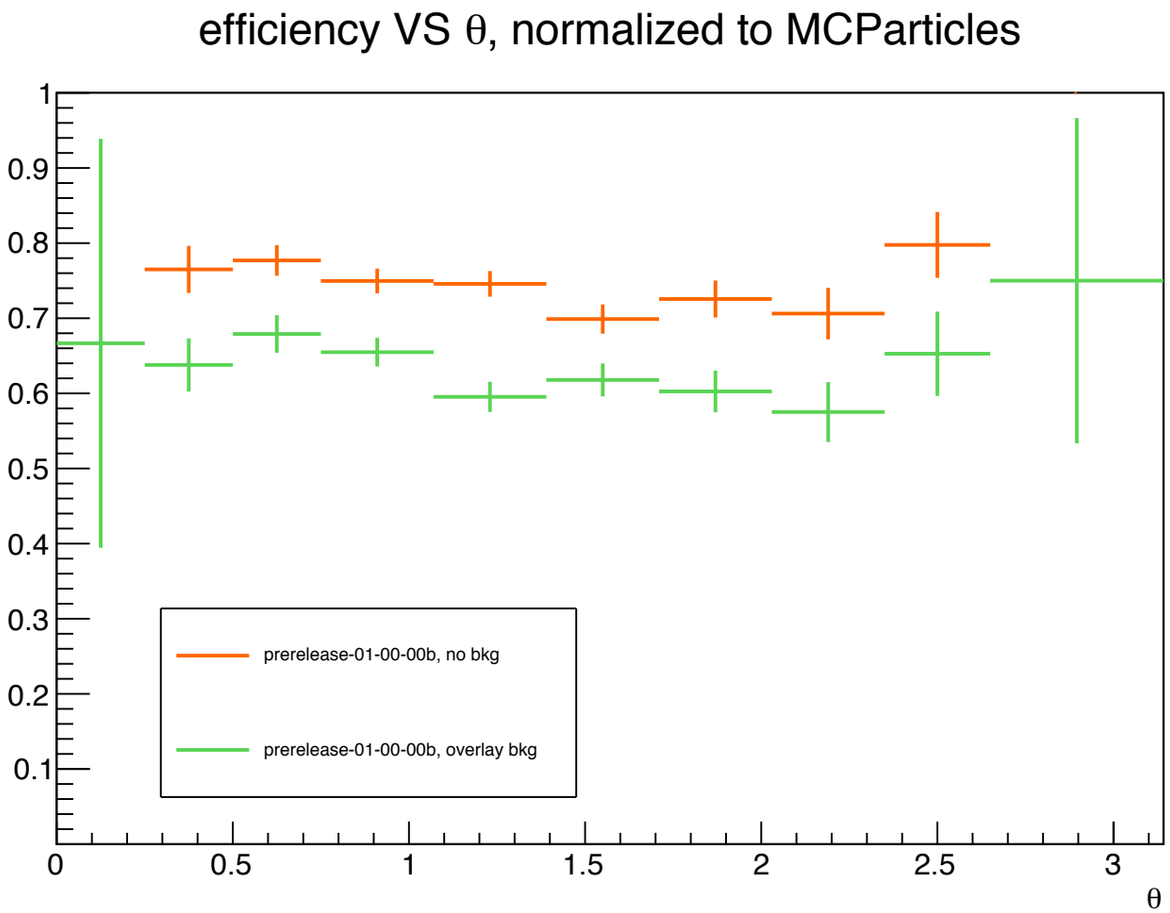
Default Setup Performances

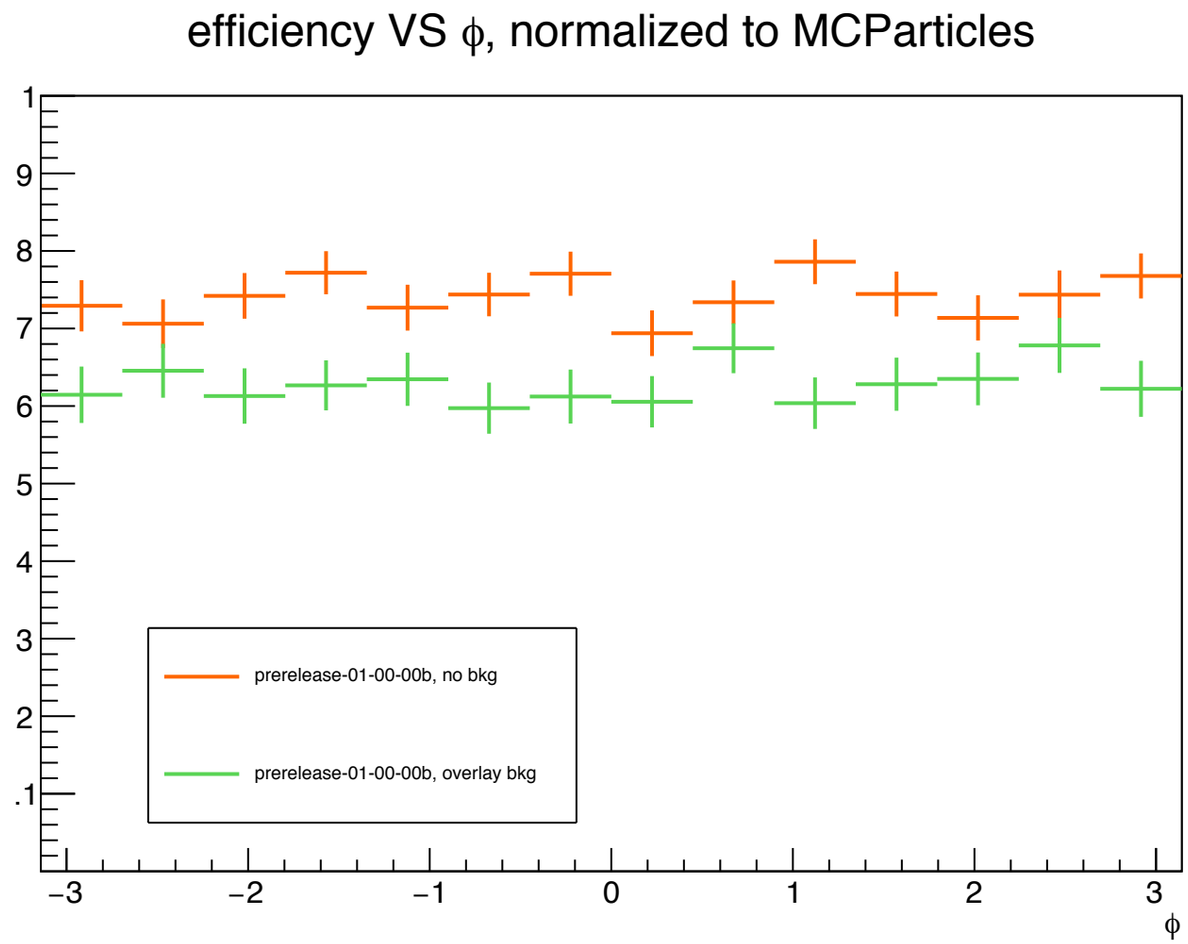
- Data sample: 10K events, generic Y(4S), w/(o) background (overlay)
- Default simulation and tracking reconstruction
- Usual V0FinfingPerformanceEvaluation module (no info about multiple mass hypothesis)

prerelease-01-00-00b		
	noBKG	overlay bkg
overall efficiency	(74.0 ± 0.8)%	(62.7 ± 0.9)%

release-00-09-00				
	noBKG		stdBKG	
	VXDTF1	VXDTF2	VXDTF1	VXDTF2
overall efficiency	(64.0 ± 0.8)%	(71.5 ± 0.7)%	(52.1 ± 0.9)%	(55.7 ± 0.9)%

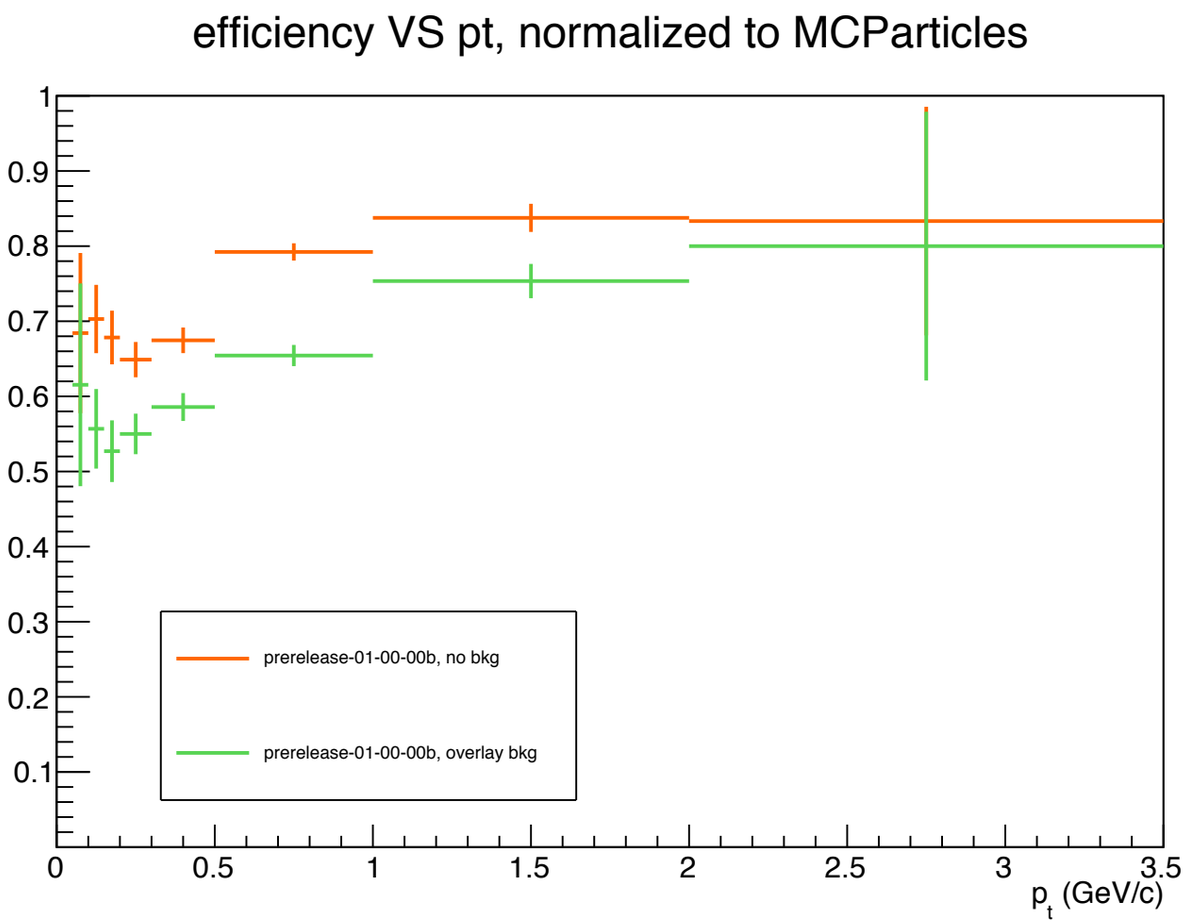
Efficiency VS Track Direction

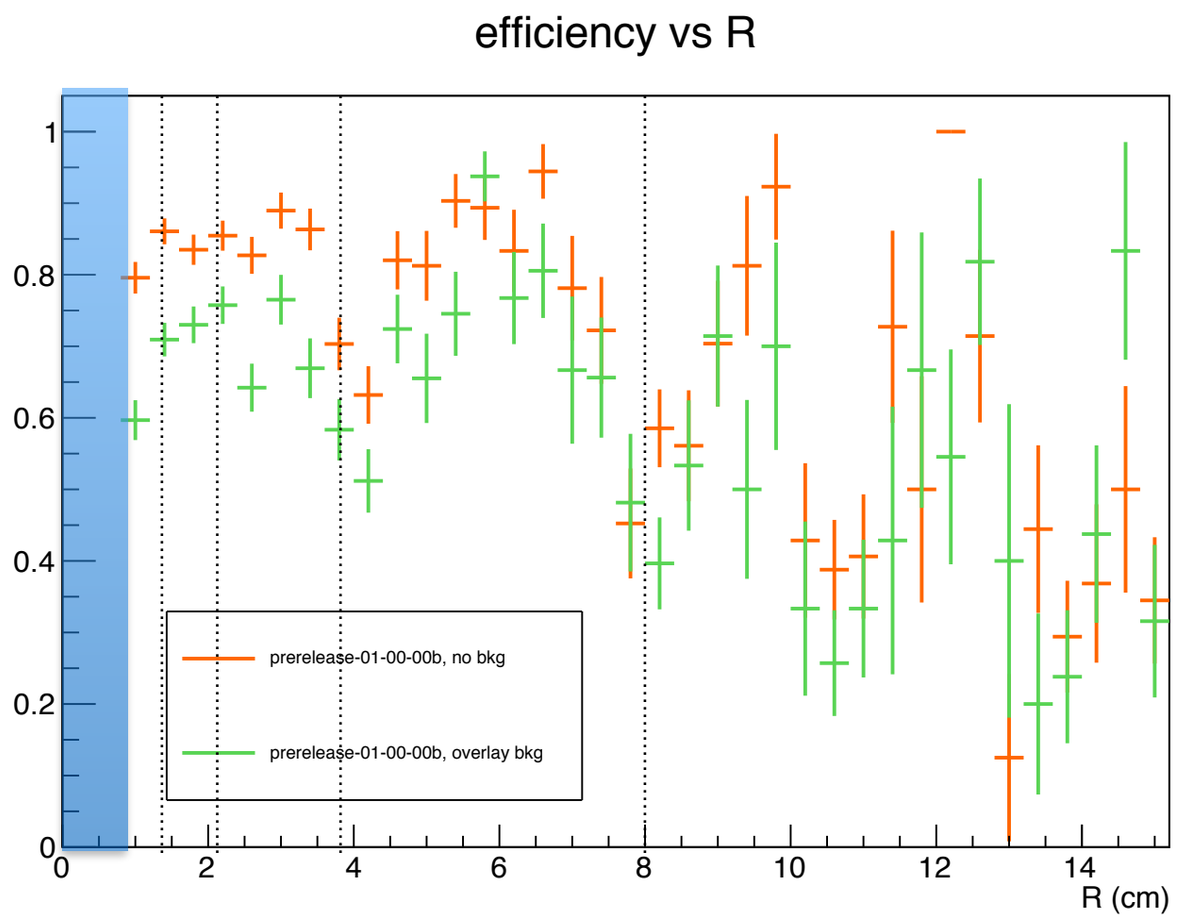




- efficiency flat with respect to phi
- small enouncement in the backward region (? big error bars due to low statistics)

Efficiency VS p_T





- lower efficiency for 200 MeV< pt < 300 MeV (?)
- structure R dependent

  → need to increase the number of events for better understanding

Conclusions/Plans

- preliminary study performed , using the standard

  V0FinfingPerformanceEvaluation module:

  - overall efficiency improved with respect to previous release
  - efficiency distributions need more statistics

- what next:

  - repeat the studies on a bigger sample
  - perform efficiency studies V0 hypothesis dependent
  - (analysis level, perform studies on Lambda-antiLambda)