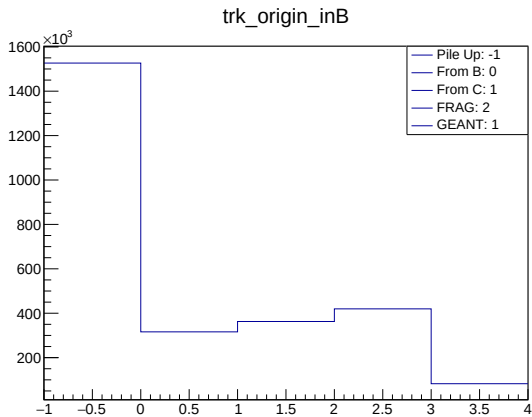


Link all repository pubblica su GitHub → https://github.com/martinosal/root_selector

PU=-1
B Hadron=0
C Hadron=1
FRAG=2
GEANT=3

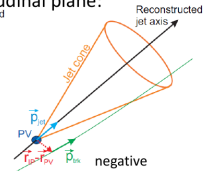
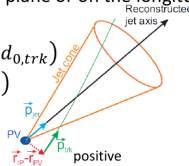


IMPACT PARAMETER d_0

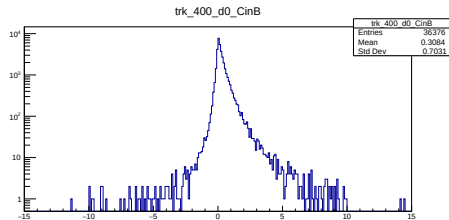
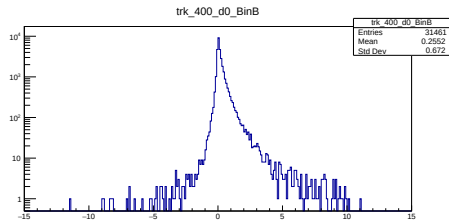
- vector $\Delta\vec{r}_{IP} = \vec{r}_{IP} - \vec{r}_{PV}$ defines the three-dimensional impact parameter of the track with respect to the primary vertex.
- $sign_{3D} = sign([\vec{p}_{trk} \times \vec{p}_{jet}] \cdot [\vec{p}_{trk} \times \Delta\vec{r}_{IP}])$

can be also defined on the transverse plane or on the longitudinal plane:

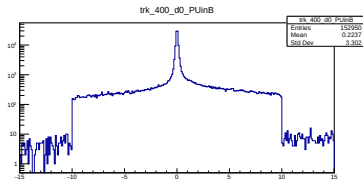
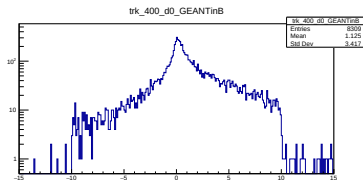
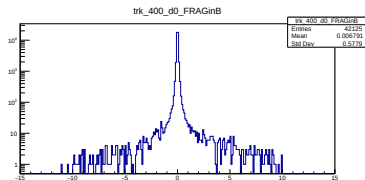
- $IP_{r\phi} = d_0, IP_z = z_0 \sin \theta$
- $sign_{r\phi} = sign(\sin(\phi_{jet} - \phi_{trk}) \cdot d_{0,trk})$
- $sign_z = sign((\eta_{jet} - \eta_{trk}) \cdot z_{0,trk})$



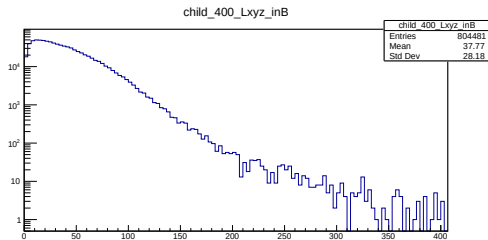
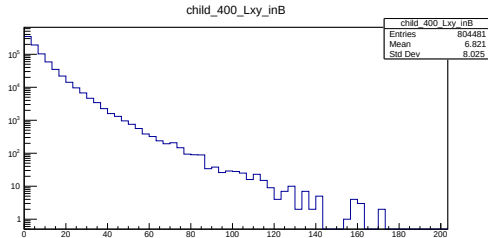
IMPACT PARAMETER d0



IMPACT PARAMETER d_0



DECAY LENGTH



SELECTIONS

Number of children: 804481

PDG-based ALG - NO CUT: acceptance: 0.822

matchings: 652725

single matchings: 373165 , fraction: 0.564

double matchings: 243773, fraction: 0.368

triple+ matchings: 44730, fraction: 0.068

PDG-based ALG - CUT: acceptance: 0.811

matchings: 661668

single matchings: 363395, fraction: 0.557

double matchings: 243902, fraction: 0.374

triple+ matchings: 45428, fraction: 0.070

ORIGIN-based ALG: acceptance: 0.843

matchings: 678177

Overlap between ORIGIN and PDG-(NO CUT) based algs matchings: 629227 ($\sim 96.4\%$ of the PDG-based matchings).

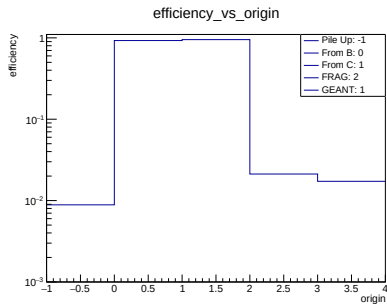
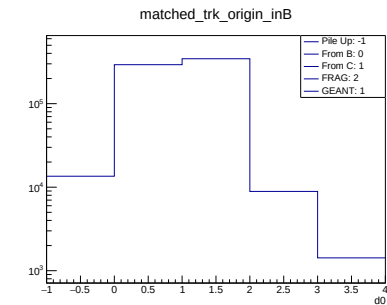
Overlap between ORIGIN and PDG-(CUT) based algs matchings: 643803 ($\sim 97.3\%$ of the PDG-based matchings).

By computing the ratio between the overlap matchings and the number of matching coming from the ORIGIN based ALG, one can estimate the efficiency of the PDG-based algs, namely:

PDG-based ALG - NO CUT average efficiency: 0.940

PDG-based ALG - CUT average efficiency: 0.935

NO CUT



NO CUT

