SSK tagging in Whizard

Opposite side
- p charged Leptons with impact param.
- p charged Kaons with impact param.
- p charged pions with impact param.
- p protons with impact param. ?

$$\dfrac{b}{\overline{s}} \quad \boxed{\overline{B_s} \to D_s^+ K^- \text{ or } \overline{B_s} \to D_s^+ \pi^-}$$

$$\dfrac{s}{\overline{u}} \quad K^-$$

$$\dfrac{u}{d} \quad \rho^+ \to \pi^+ \pi^0$$

$$\dfrac{d}{\overline{d}} \quad \rho^0 \to \pi^+ \pi^-$$

$$B^+ \to \overline{D^0} \ell^+ \nu \quad \overline{b}$$
$$\overline{D^0} \to K^+ \ell^- \nu \quad u$$

$$\pi^- \dfrac{\overline{u}}{d}$$
$$\dfrac{d}{\rho^+ \to \pi^+ \pi^0} u$$
$$\pi^- \dfrac{\overline{u}}{d}$$

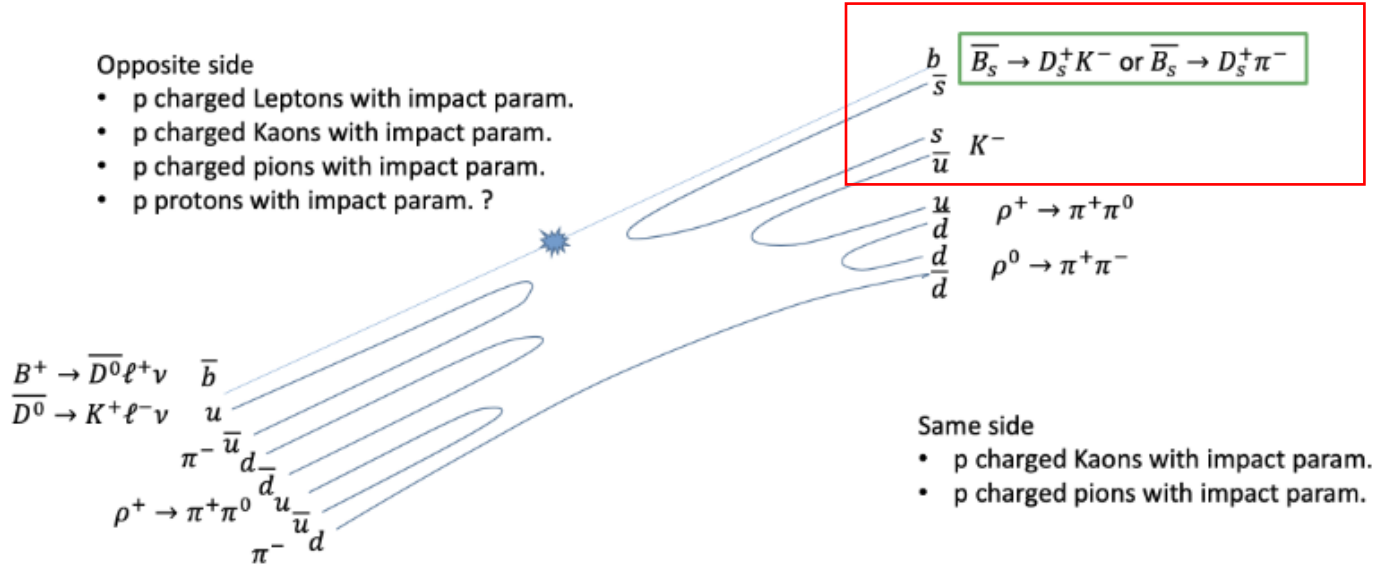Same side
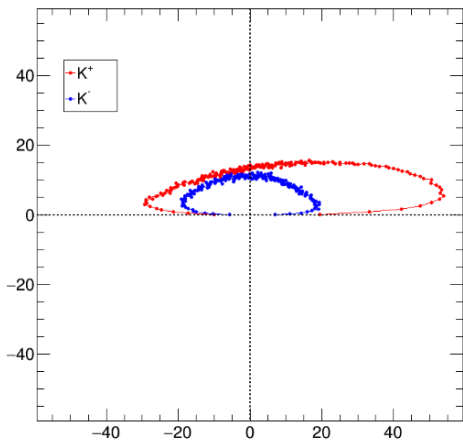- p charged Kaons with impact param.
- p charged pions with impact param.

SSK tagging in Whizard

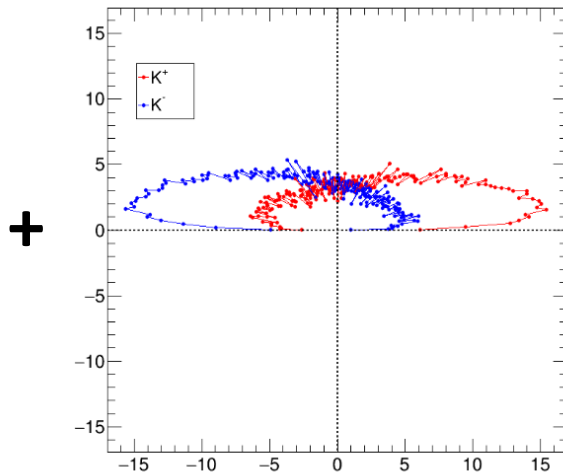Polar plot of angular distribution between Bs0 and leading kaon in all directions
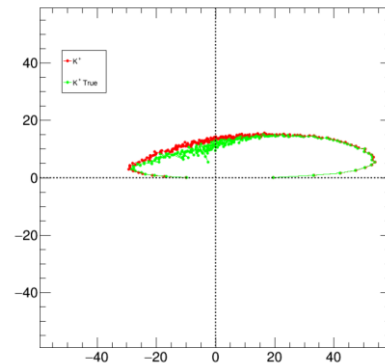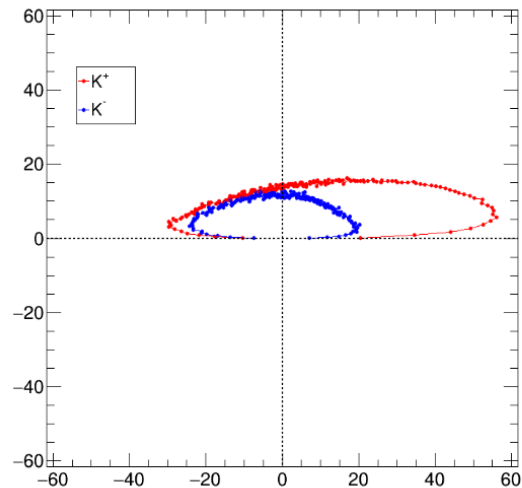The leading kaon share the same vertex with Bs0

$$R = \sqrt{N}$$

Count events without anti_Bs0

+

Count events with anti_Bs0
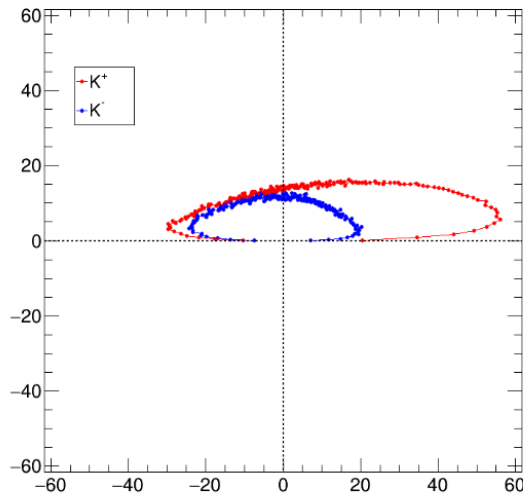

=

Count all events

SSK tagging in Whizard

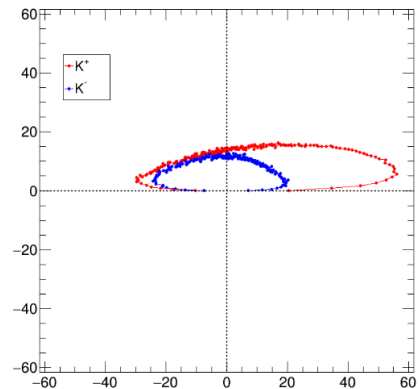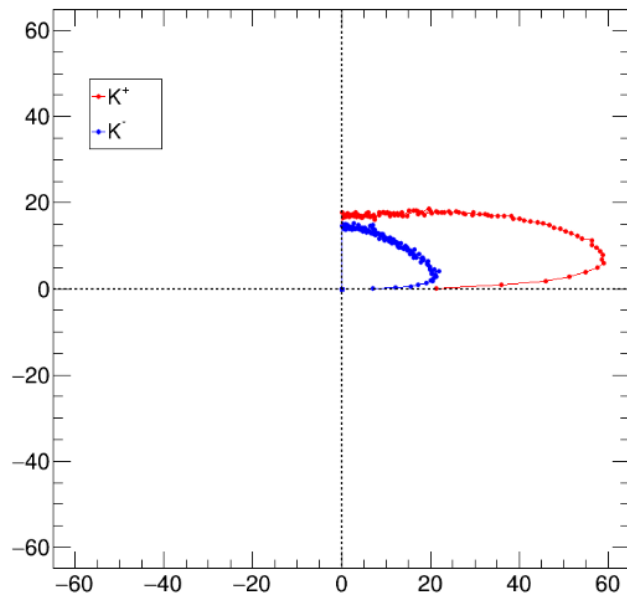$$\varepsilon_{tag} = \frac{N_R + N_W}{N_R + N_W + N_U} \qquad \omega = \frac{N_W}{N_R + N_W}$$

$$\varepsilon_{eff} = \varepsilon_{tag} D^2 = \varepsilon_{tag}(1 - 2\omega)^2$$

```
('count Bs0:', 244168)
('tag', 0.7250090101897054)
('mis', 0.27569708062183657)
('eff', 0.14590603223598075)
```

SSK tagging in Whizard

Polar plot of angular distribution between Bs0 and leading kaon in the same direction
The leading kaon share the same vertex with Bs0


```
('count Bs0:', 244168)
('tag', 0.5745347465679368)
('mis', 0.19963930055673174)
('eff', 0.2073301702334758)
```