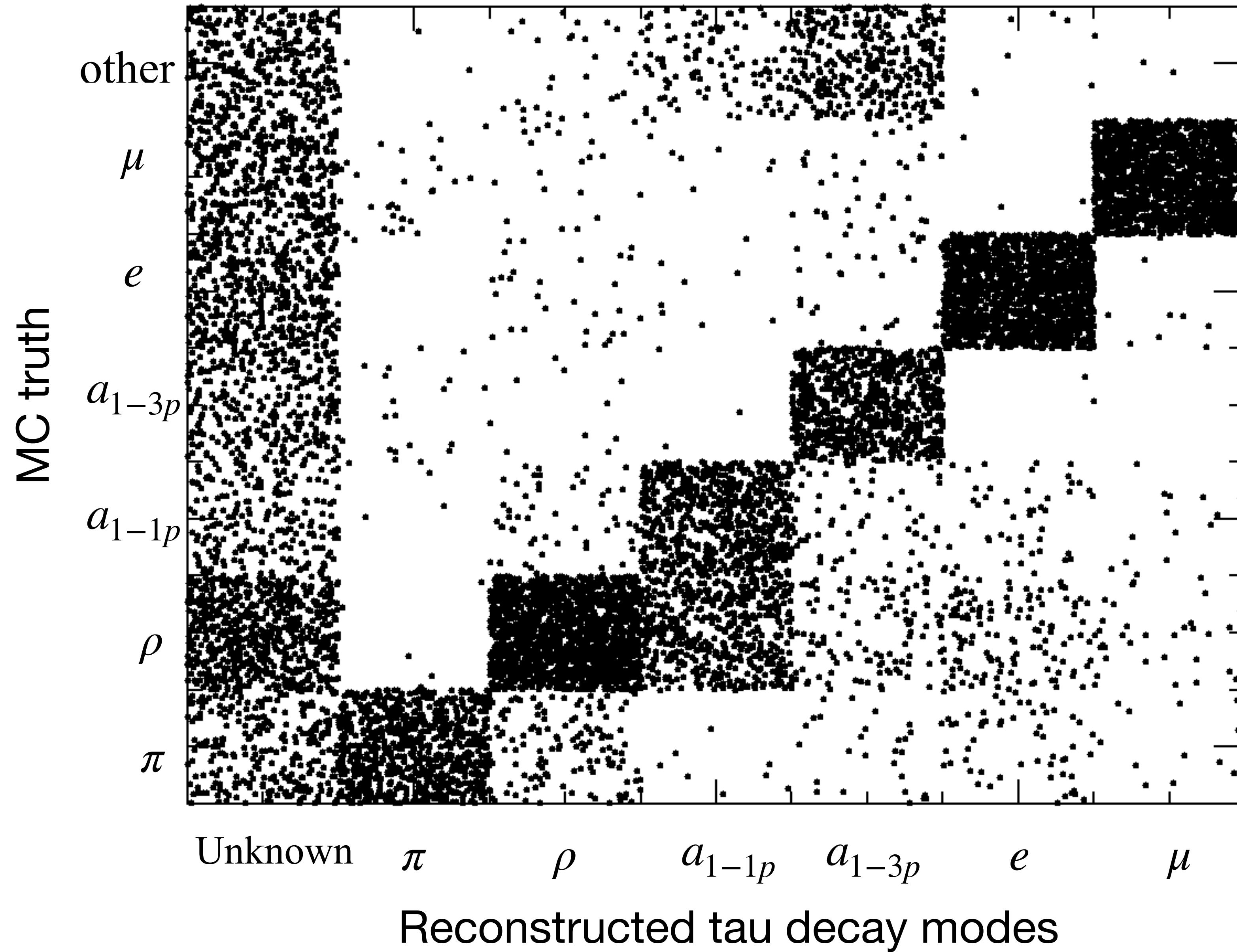


$$\text{eff} = \frac{\text{each reconstructed decay}}{\text{sum of all entries for each MC decay}}$$



$m_{\tau\tau} > 240 \text{ GeV}$

OLD

MC truth

[%]	pi	rho	a11p	a13p	e	mu	unknown
pi	65.41	12.03	0.00	1.50	4.51	0.75	15.79
rho	0.34	48.28	17.59	5.86	3.45	0.69	23.79
a11p	0.82	5.74	69.67	4.92	5.74	0.82	12.30
a13p	0.00	0.86	0.00	72.41	0.00	0.00	26.72
e	0.45	0.45	0.90	0.90	73.87	1.35	22.07
mu	1.33	0.00	0.88	1.77	0.00	80.53	15.49
other	0.00	2.11	14.74	42.11	1.05	0.00	40.00

MC - reco mathed

$$\epsilon_{ij} = \frac{N_j}{\sum_j N_{ij}}$$

NEW

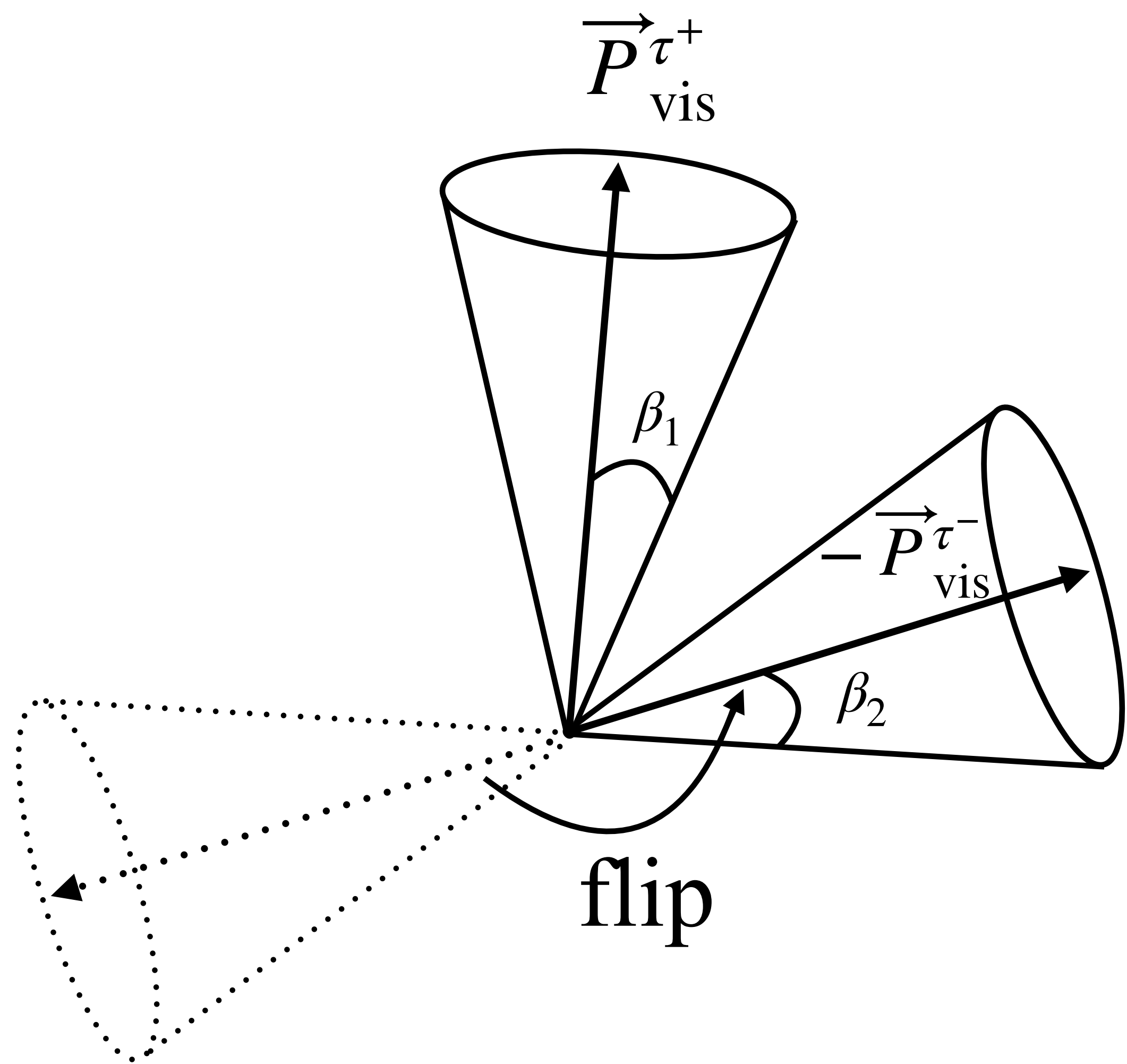
MC truth

[%]	pi	rho	a11p	a13p	e	mu	unknown
pi	75.39	11.97	0.50	3.18	5.45	1.94	1.56
rho	3.67	72.37	8.81	4.72	5.94	1.48	3.00
a11p	2.22	14.87	67.08	4.10	6.23	1.37	4.13
a13p	2.71	2.96	1.62	73.09	0.22	0.11	19.29
e	0.21	1.42	0.30	1.15	94.74	0.57	1.61
mu	1.73	0.87	0.07	1.69	0.20	94.33	1.12
other	11.00	21.20	18.29	28.27	1.77	0.54	18.94

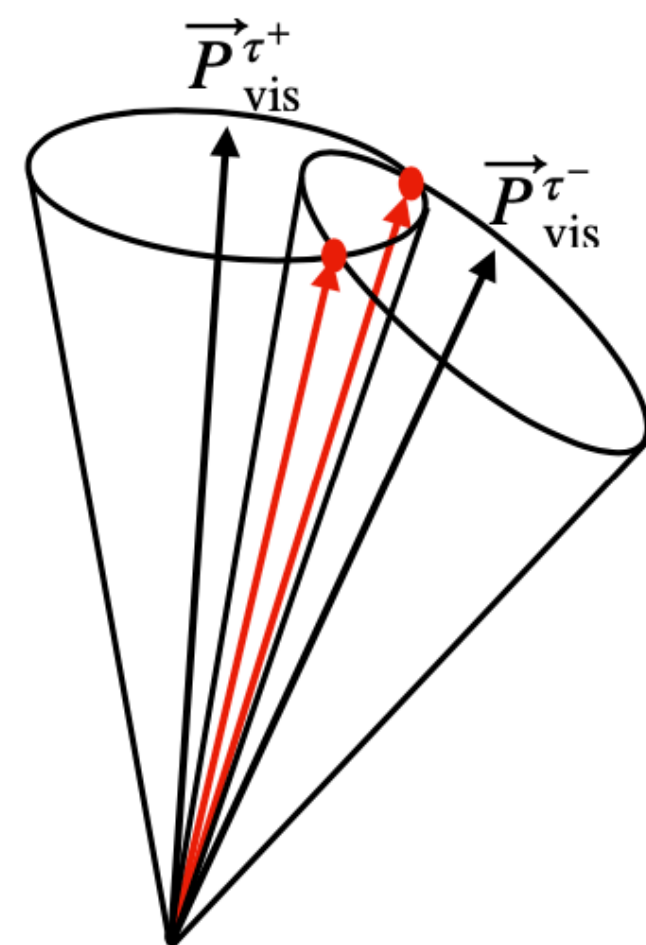
IsolatedLeptonTagging+ ECAL information were applied to the case #charged particle inside cone = 2

overlay or mumu events?

Change some cut value determined by looking at distribution for each decay modes

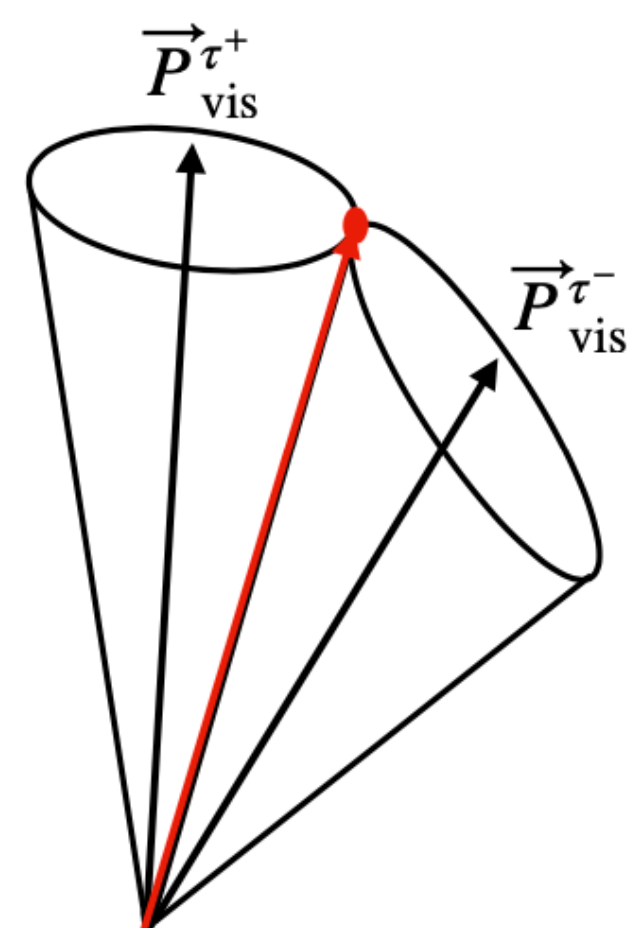


$$\beta_1 + \beta_2 > \beta_{cc}$$



2 possible solutions

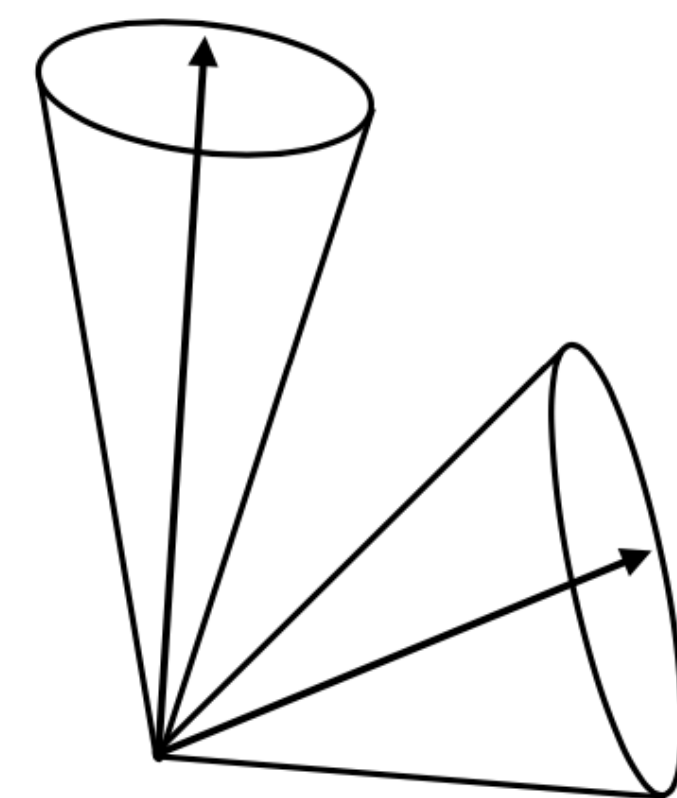
$$\beta_1 + \beta_2 = \beta_{cc}$$



1 possible solution

“cone method”

$$\beta_1 + \beta_2 < \beta_{cc}$$



NO solutions

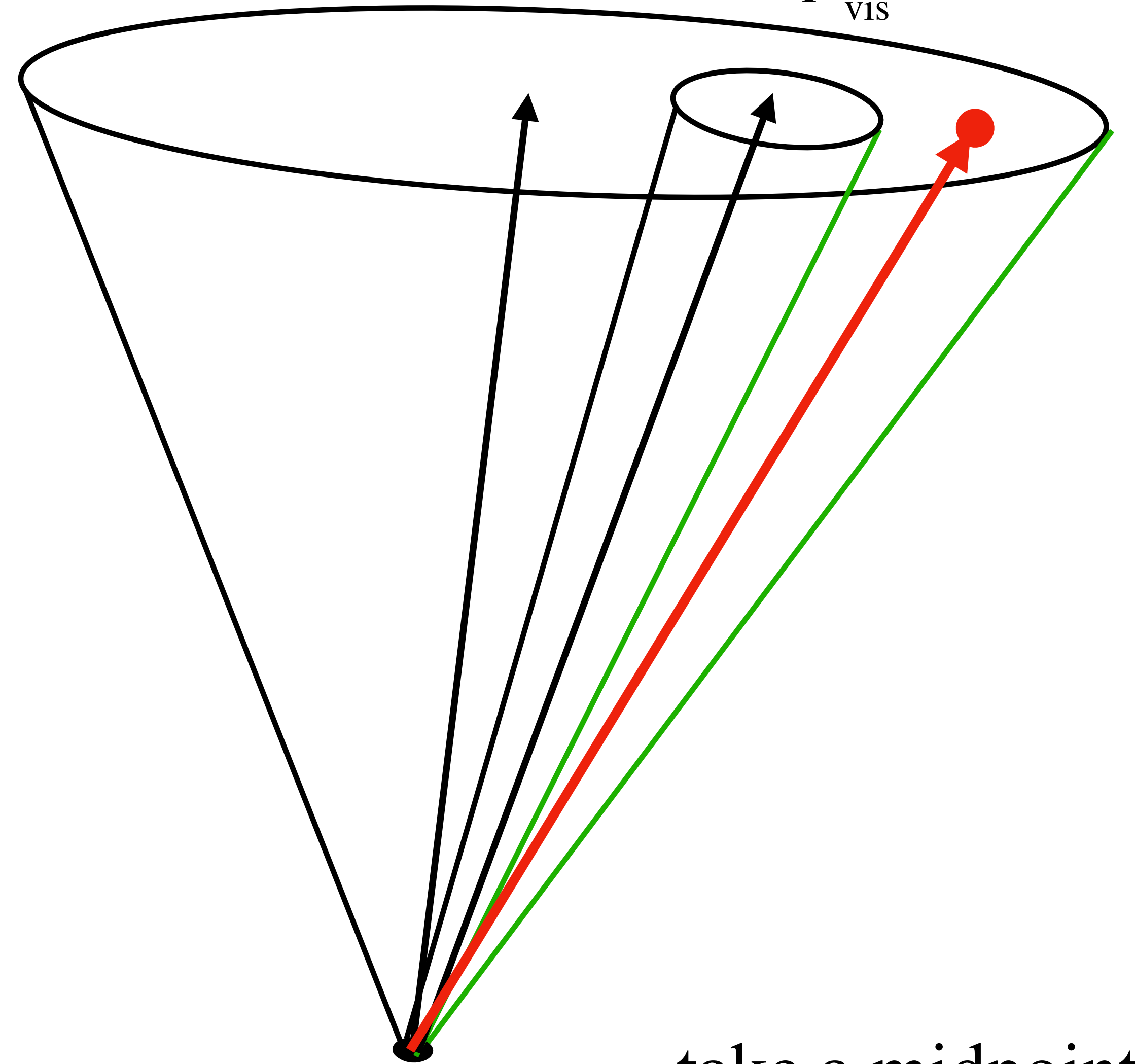
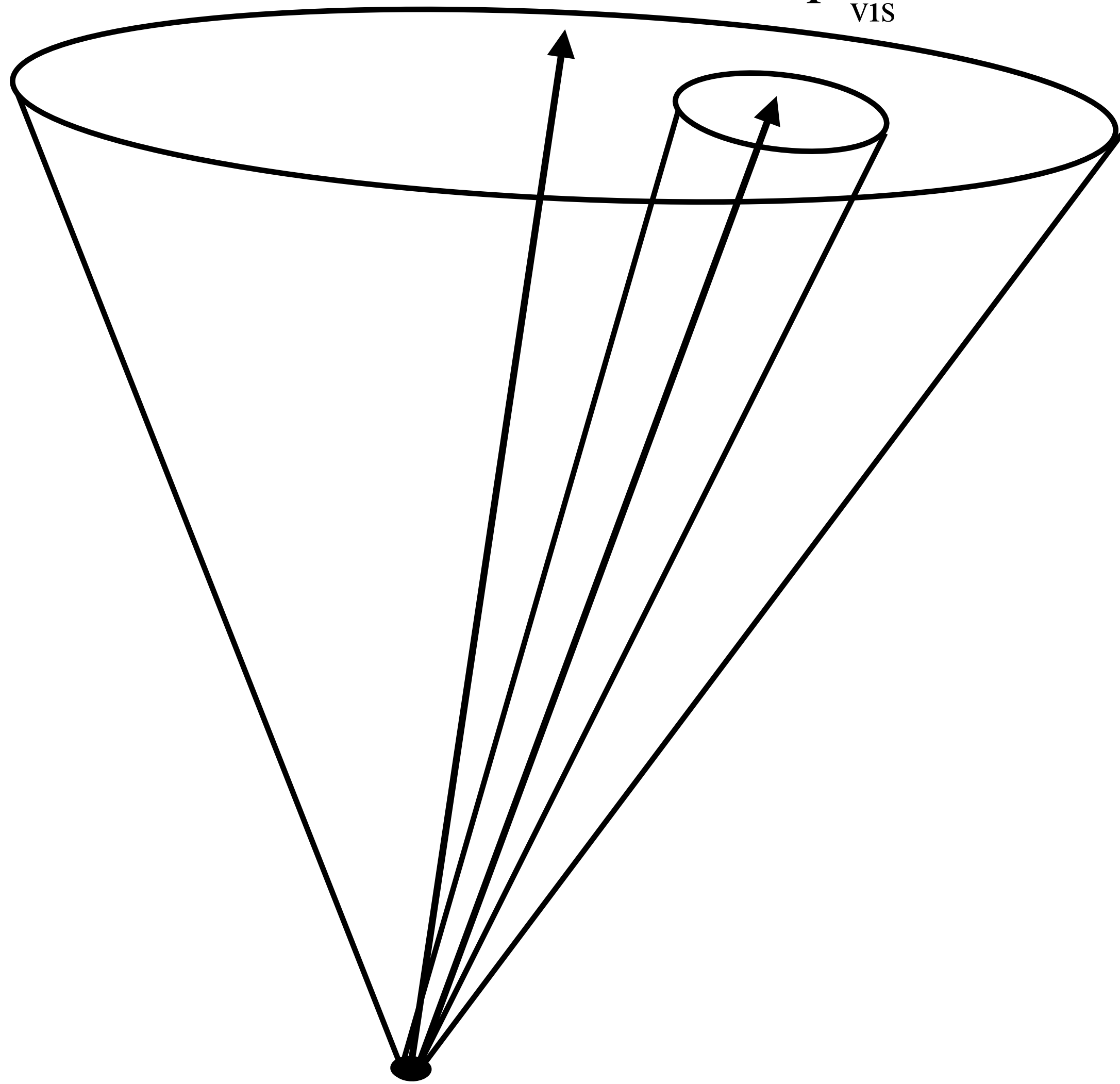
“Midpoint method”

Another case $|\beta_1 - \beta_2| > \beta_{cc}$

smaller cone get inside larger cone

$\vec{P}_{\text{vis}}^{\tau^+}$
 $-\vec{P}_{\text{vis}}^{\tau^-}$

$\vec{P}_{\text{vis}}^{\tau^+}$
 $-\vec{P}_{\text{vis}}^{\tau^-}$

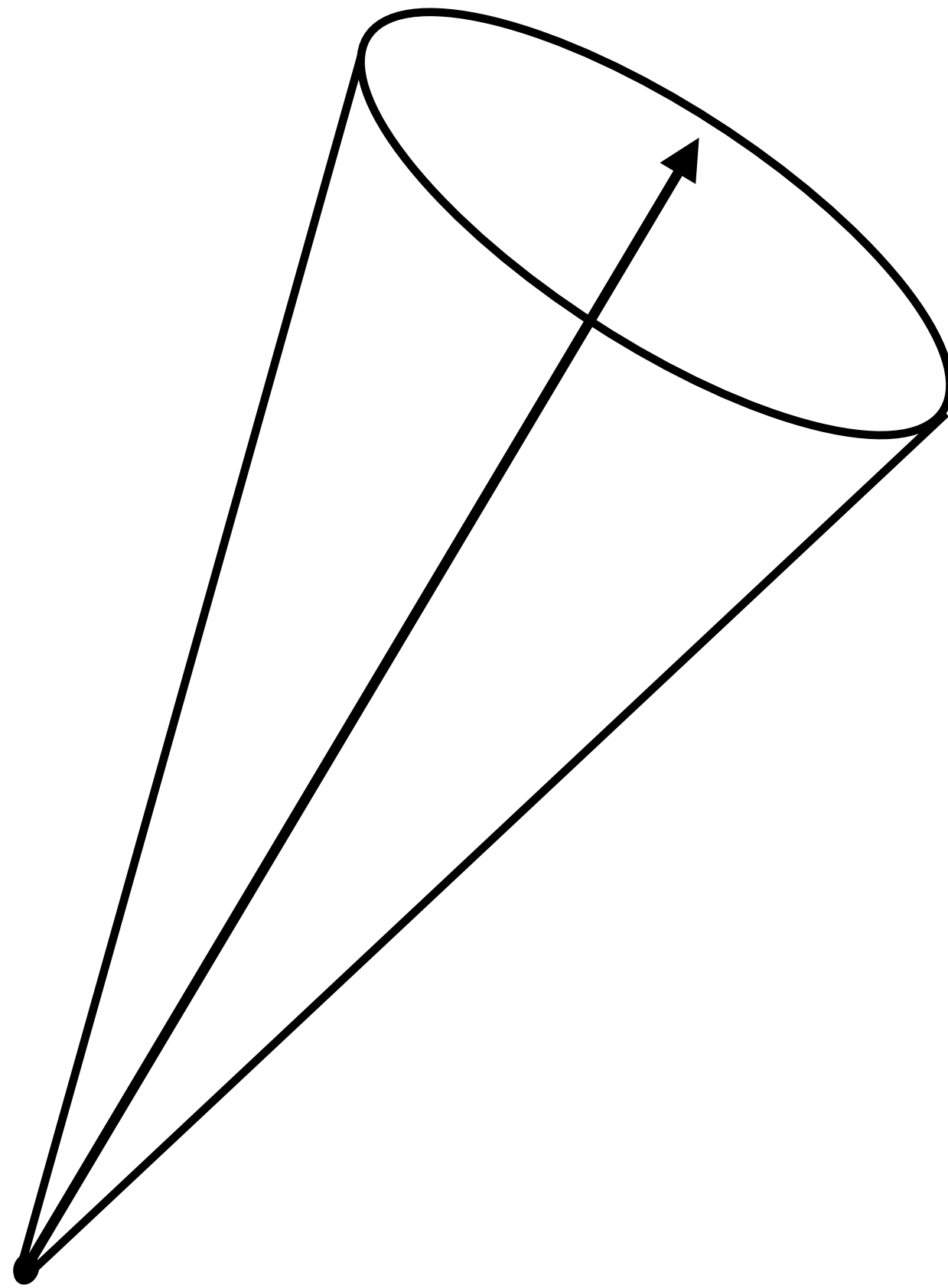


take a midpoint

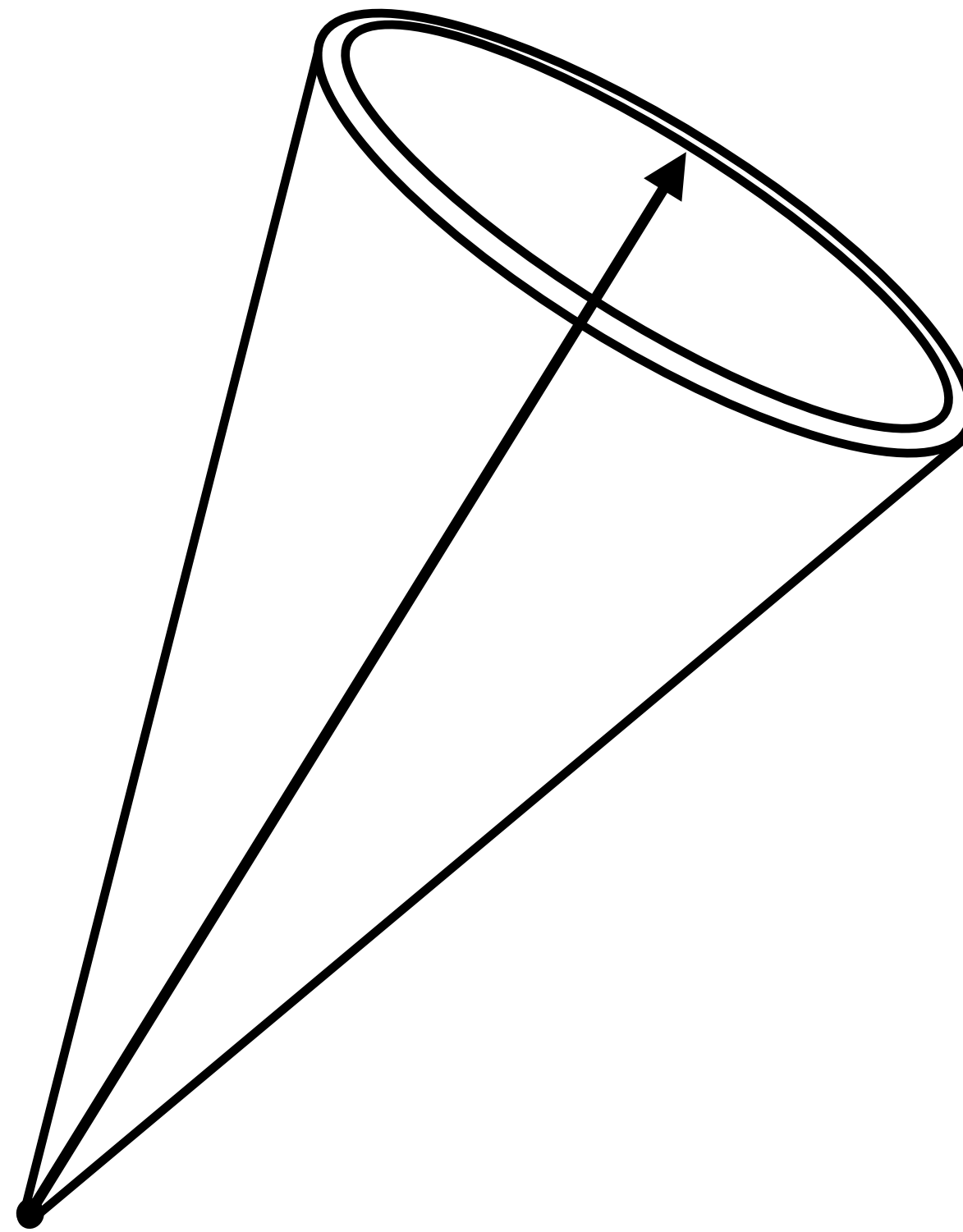
however, we have another problem

sometimes mathematically calculated $\cos \beta > 1$ due to the uncertainty

Suehara-san's suggestions

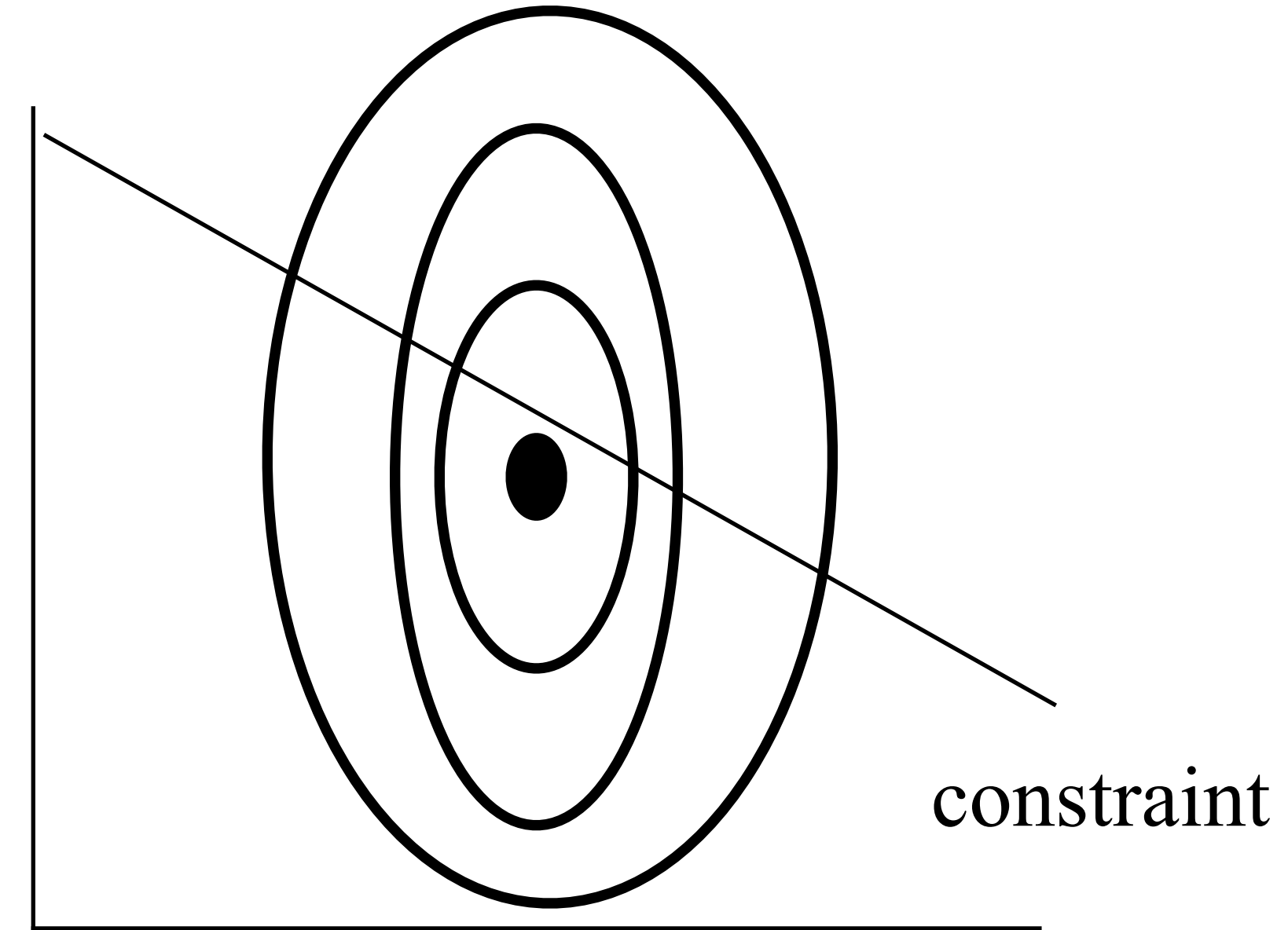


cone with width depends on error



$\sigma_{E_{\text{beam}}}$ $\sigma_{|P_{\text{vis}}|}$ $\sigma_{E_{\text{vis}}}$

kinematic fitting



by looking at chi2 distribution
with constraint

$$m_{\tau} = 1.776 \text{ GeV}$$

τ - τ is back-to-back

find smallest chi2