2018/05/11

status

Unbinned

$$\mathcal{L}(\vec{a}_V) = \mathcal{L}_{\text{shape}}(\vec{a}_V) \cdot \mathcal{L}_{\text{norm}}(\vec{a}_V)$$

$$= \prod_{i=1}^{\text{MCevents}} P_{\text{shape}}(\vec{p}_i^{\,\mu}; \vec{a}_V) \cdot P_{\text{norm}}(\vec{a}_V)$$

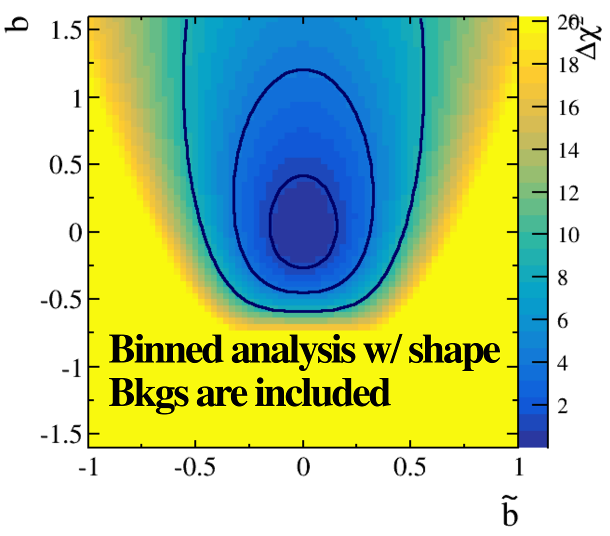
momenta: μ, μ, and recoil info.

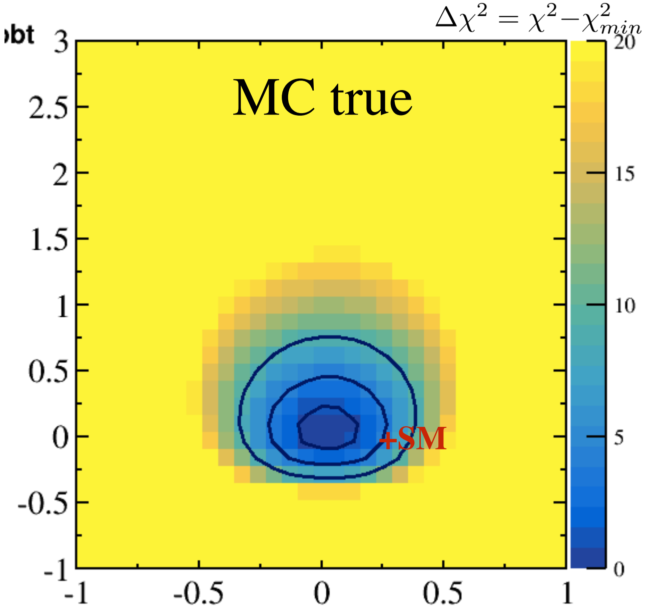
The unbinned estimation seems to be sensitive to ISR & BSL

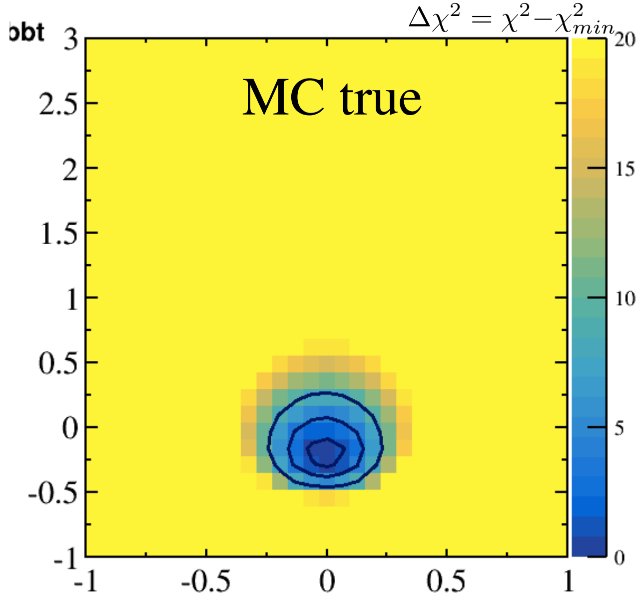
$$P_{\text{shape}}(\vec{p}^{\,\mu}; \vec{a}_V) = \frac{A_{cc}^{\mu\mu H}(\vec{p}^{\,\mu})|\mathcal{M}_{ZH\to\mu\mu H}(\vec{p}^{\,\mu}; \vec{a}_V)|^2}{A_{cc}^{\mu\mu H}(\vec{a}_V)\sigma_{ZH\to\mu\mu H}(\vec{a}_V)}$$

ME : is LO
Sample : No ISR & BSL
Denom. : is calculated w/o ISR & BSL

ME : is LO
Sample : with ISR & BSL
Denom. : is calculated w/o ISR & BSL







Binned

Poisson の定義 $P = \frac{\lambda^k}{k!} e^{-\lambda}$

$$\chi^2 = \underbrace{-2}\log \Delta\mathcal{L}$$

insert "factor" for scaling
to #expected ~1623

Likelihood $$L(\vec{a}_V) = \Pi_{bin=1}^{N} \frac{\lambda_{bin}^{k}(\vec{a}_V)}{k_{bin}!} e^{-\lambda_{bin}(\vec{a}_V)}$$

Expectation on certain bin $$\lambda(\vec{a}_V) = L * (\text{BinArea}) * A_{cc}^{\mu\mu H}(\vec{p^\mu}) |M_{\mu\mu H}(\vec{p^\mu}\vec{a}_V)|^2$$

Pmu+ , Pmu- , Precoil (momentum)

E = √ (m^2 + |P|^2)

=> 9 dim array => center values → **input**

Normalization is included .

How I should separate it .

BinArea calc. has some troubles

try to investigate.