

Continuation of
General physics meeting
2018/04/14

Normalization of denominator

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

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Denominator must be correctly normalized to give Probability

σ varies depending on a_V

Ratio of $|\mathcal{M}|^2$ over events gives σ ()

automatically Acc is included

$$\text{Denomi} = \sum^{\text{MCremain}} \frac{|\mathcal{M}(\text{bsm})|^2}{|\mathcal{M}(\text{sm})|^2} \underbrace{\left(\frac{\sigma(\text{expect}) * L250}{N \text{ gene}} \right)}_{\text{original MC weight}} / L250 = \sigma(\text{remaining})$$

which depends on a_V

#of expected events

Parameter estimation

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

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ME : is LO

Sample : no ISR no BSL

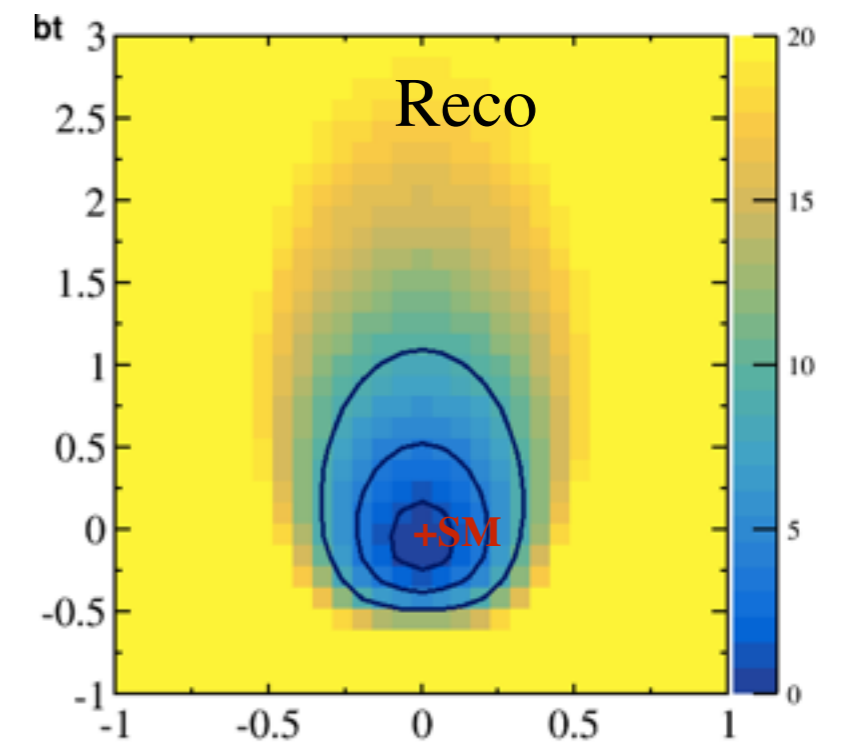
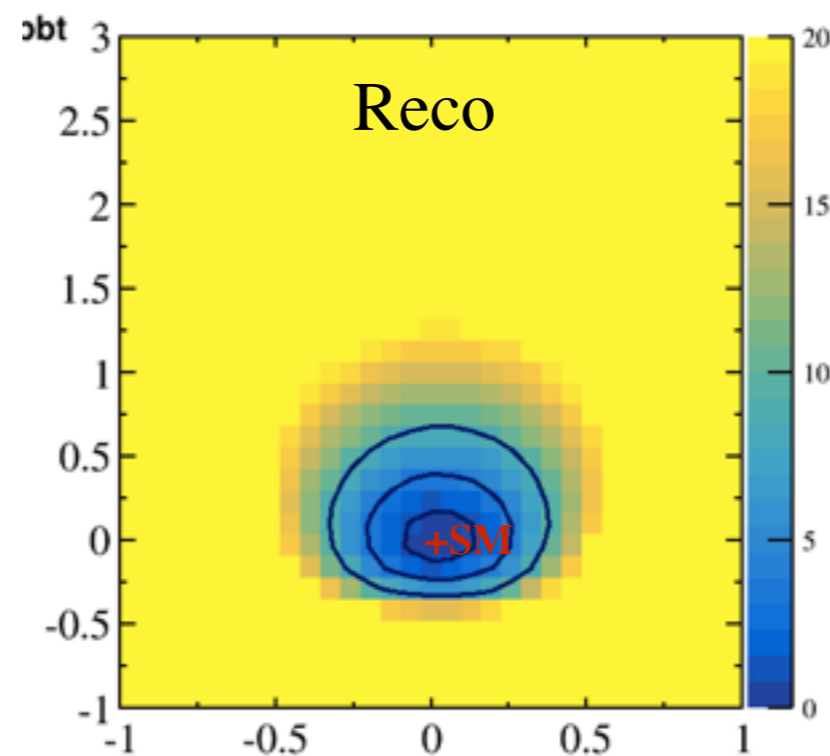
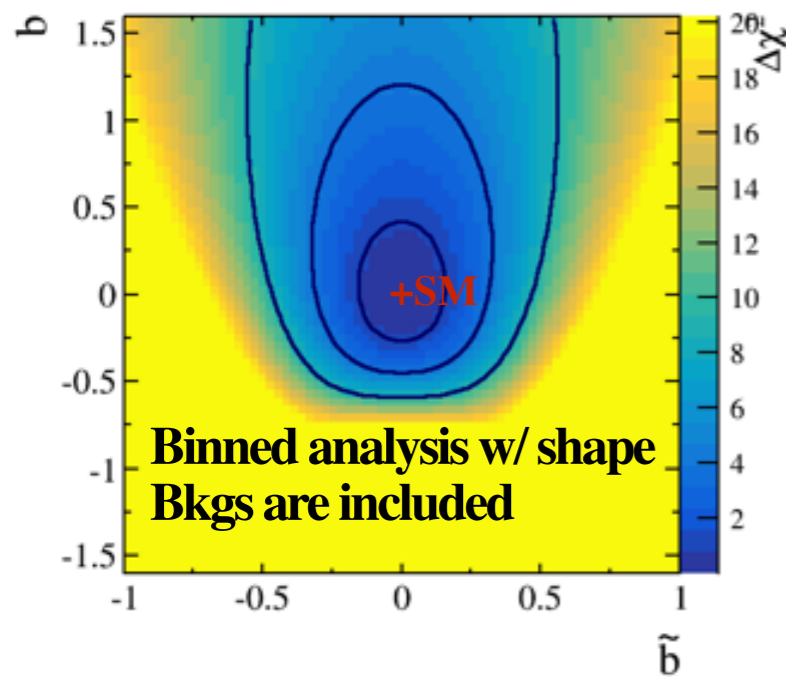
Denomi. : is calculated without ISR and BSL

Denomi

is normalized

with |M|² of remaining events

$$\Delta\chi^2 = \chi^2 - \chi_{min}^2$$



Parameter estimation

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

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ME : is LO

Sample : with ISR with BSL

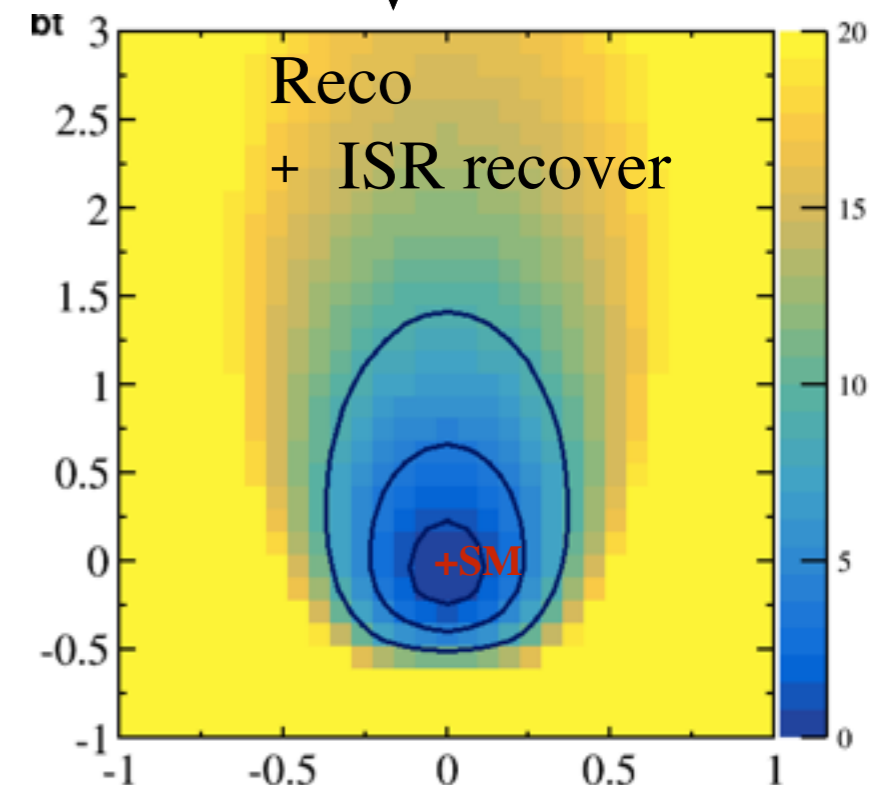
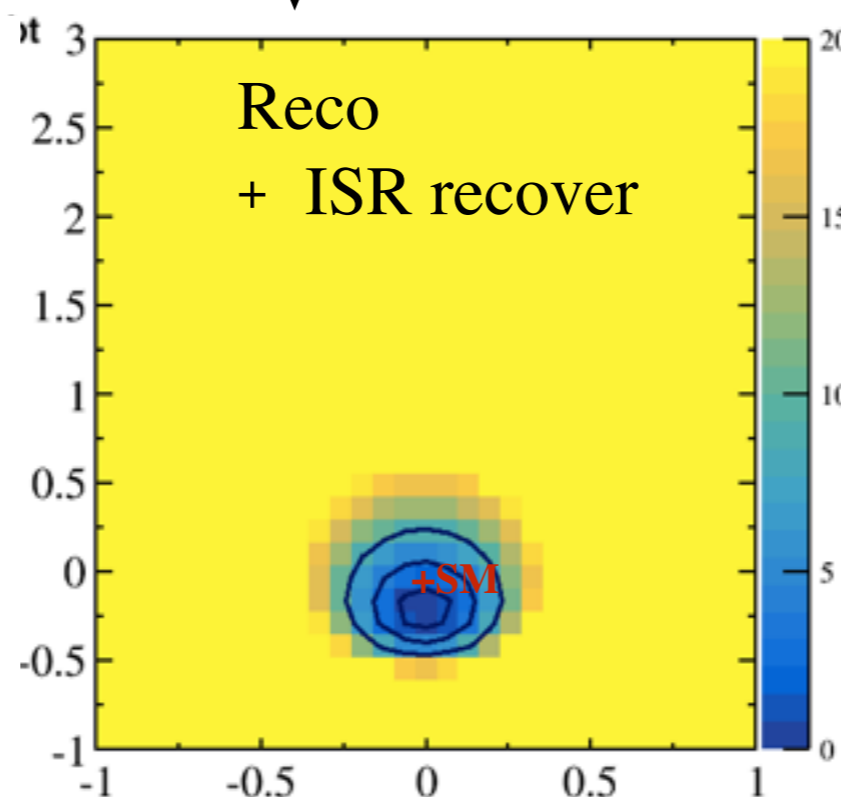
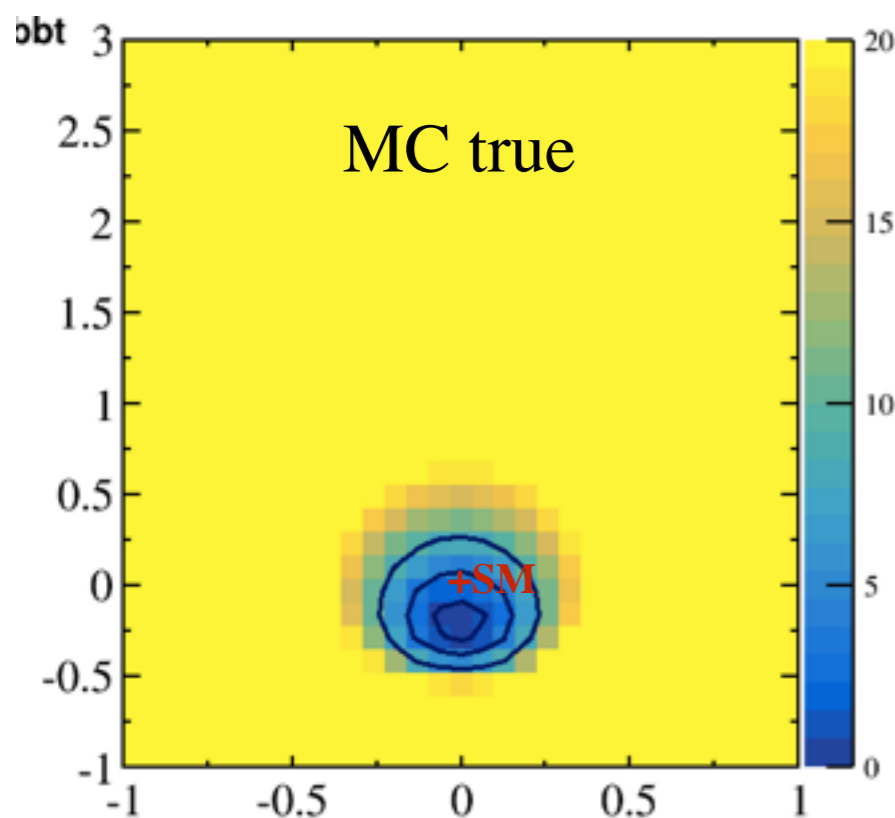
Denomi. : is calculated without ISR and BSL

Denomi

is normalized

with |M|2 of remaining events

$$\Delta\chi^2 = \chi^2 - \chi_{min}^2$$



Parameter estimation

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

ME : is LO

Sample : with ISR with BSL

Denomi. : is calculated including ISR and BSL with Wizard interface

is normalized
with $|M|^2$ of remaining events

$$\Delta\chi^2 = \chi^2 - \chi_{min}^2$$

