

Weekly report

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Next steps of VBF systematics analysis

- ▶ Plot the overlay of the ratio sys/nom m4l (and ME) plots for each of the 4 sys sets
 - ▶ a) For QCD scale: **MUR1.0_MUF1.0_PDF260000 as nominal**, $\mu_R = 0.5, 1.0, 2.0$, $\mu_R = 0.5, 1.0, 2.0$
 - ▶ b) For PDF: two categories
 - ▶ 1) internal PDF sets: MUR1.0_MUF1.0_PDF260000,, MUR1.0_MUF1.0_PDF260100
 - ▶ 2) **alternative PDF sets: MUR1.0_MUF1.0_PDF260000 (nominal), MUR1.0_MUF1.0_PDF13100, MUR1.0_MUF1.0_PDF25200**
 - ▶ c) α_S variation: MUR1.0_MUF1.0_PDF265000 ($\alpha_S = 0.117$), MUR1.0_MUF1.0_PDF265000 ($\alpha_S = 0.119$), MUR1.0_MUF1.0_PDF260000 (nominal, $\alpha_S = 0.118$)
- ▶ Errors:
 - ▶ For QCD scale, take the 8-point envelope;
 - ▶ For PDF internal errors, take the standard deviation,
 - ▶ For alternative PDF sets, take the envelope of the three different PDF sets
 - ▶ For α_S variation, also you take the envelope for the three α_S values.

Theoretical systematic uncertainties

alternative PDF variation for VBF sbi

- Taken as an envelope of all variations as a function of m_{4l} and MELA

