BR subgroup report: YR4 and beyond

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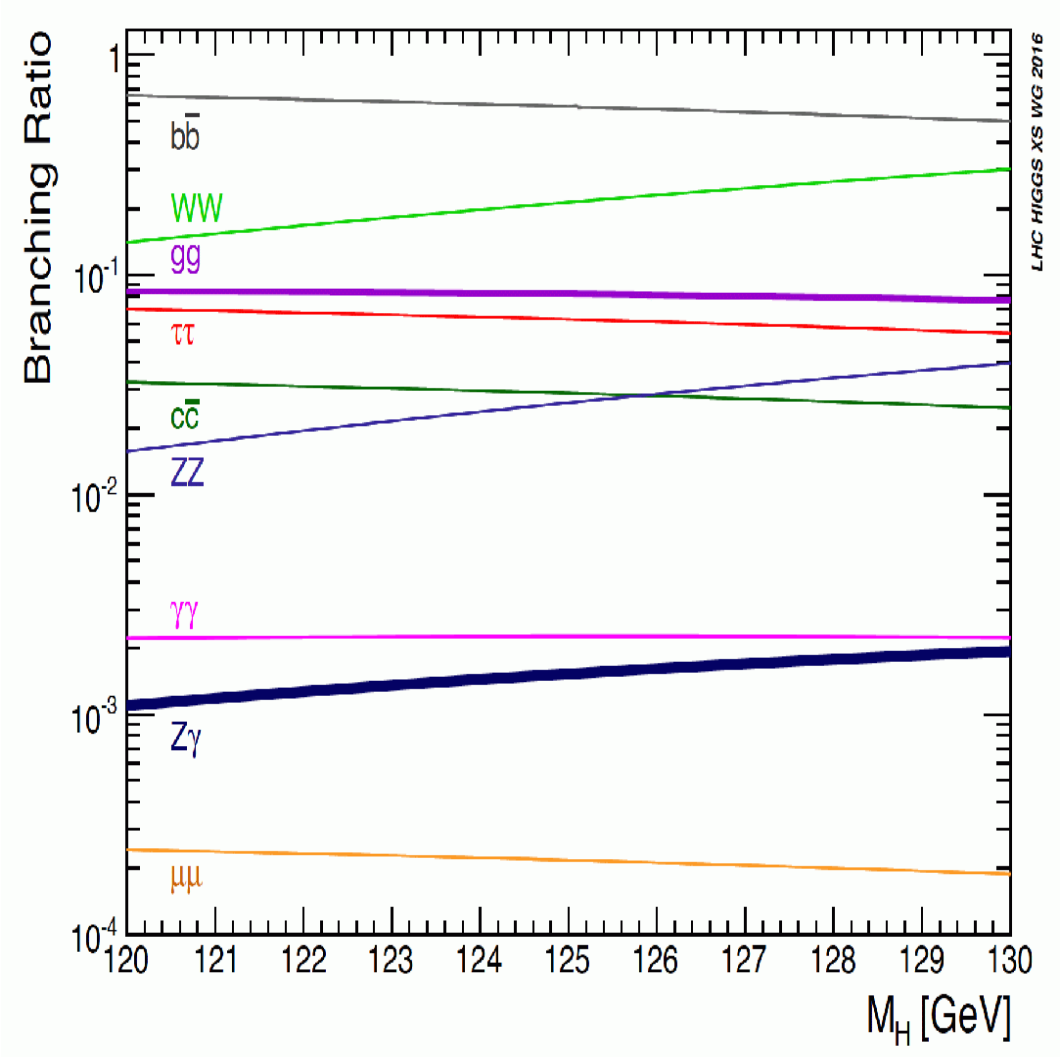
- YR4
- Beyond YR4

YR4: Mission accomplished (I): SM



– Setup unchanged:

Hdecay and Prophecy4f combined

$$\Gamma_H = \Gamma^{\rm HD} - \Gamma^{\rm HD}_{ZZ+WW} + \Gamma^{P4f}_{4f}$$

– re-evaluated using updated SM parameters and NLO EW corrections (for $H \to f\bar{f}$)

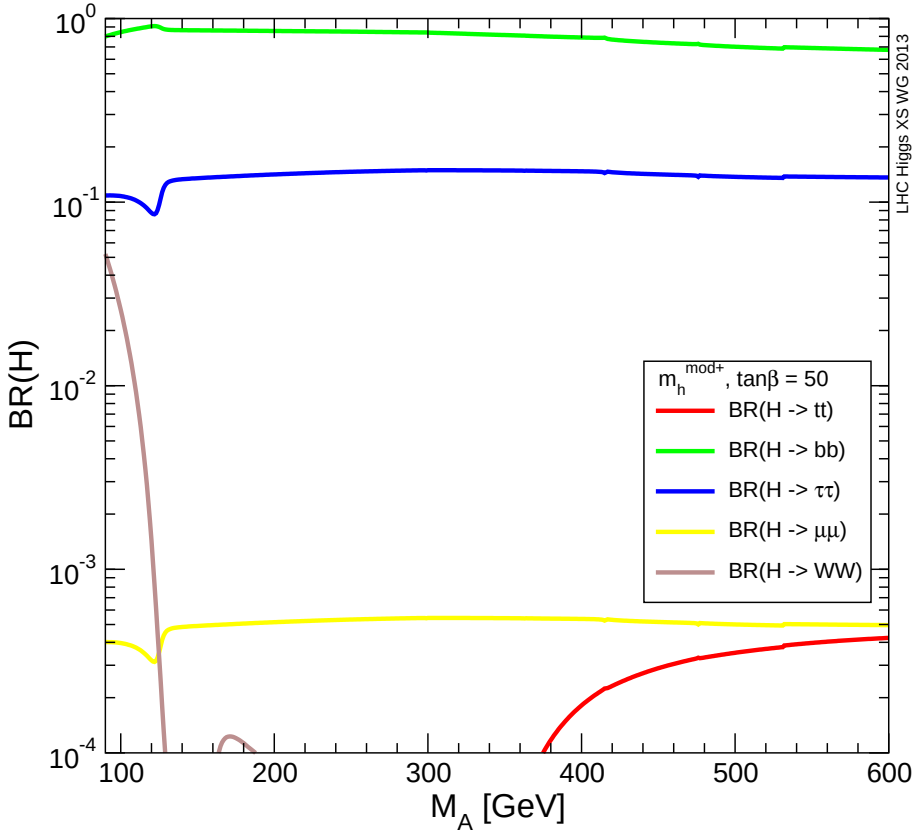
– re-evaluation of THU and PU

– changes within the estimated uncertainties

– fine grid around 125 GeV . . .

– . . . and for [20 GeV . . . 1 TeV] w/o EW corrections

YR4: Mission accomplished (II): MSSM



Predictions for MSSM decays:

- Setup unchanged:
  channels based on
  `FeynHiggs` and `Hdecay`
- results in the "classic benchmarks"
- results in the low-tan β scenarios

Exotic decays: (see "exotics group"!)

- scenario with displaced vertices:

$h \to \tilde{\chi}_1^0 \tilde{\chi}_1^0 \to (\gamma \tilde{G})\,(\gamma \tilde{G})$

$\Rightarrow$ provided to exotics group

- $H \to \gamma$ + meson $(J/\Psi, \Upsilon, \ldots)$
- $H \to W/Z$ + meson

$\Rightarrow$ total SM width sufficient for BR

Open issues?

- Dalitz decays
  Despite our efforts (two meetings and many discussions), not sufficient interest (ATLAS/CMS...) to include a recommendation

- Updated SM parameters for MSSM BRs
  It might not be worth the effort, negligible changes expected

- Uncertainties for MSSM BRs
  Wait for discovery? ;-)

Beyond YR4:

- updated SM parameters for SM BRs
- updated calculations for SM BRs
- updated calculations for MSSM BRs
  (what about the NMSSM?)
- ...

We have the machinery ready: