First evidence for H→Zγ at the LHC

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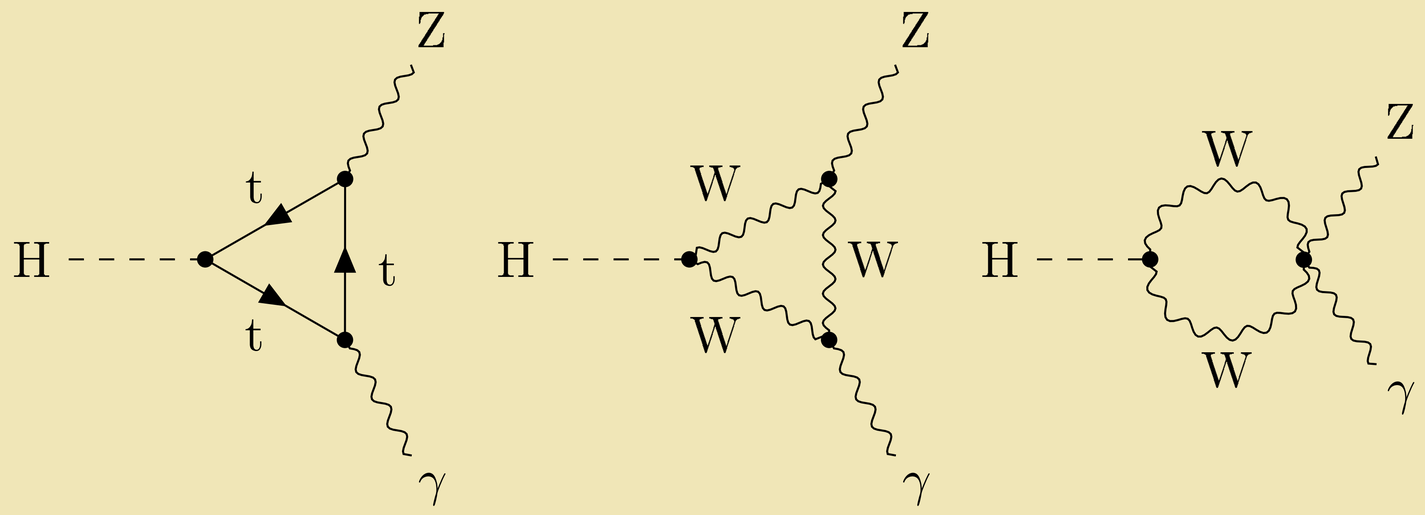
on behalf of the ATLAS and CMS Collaborations

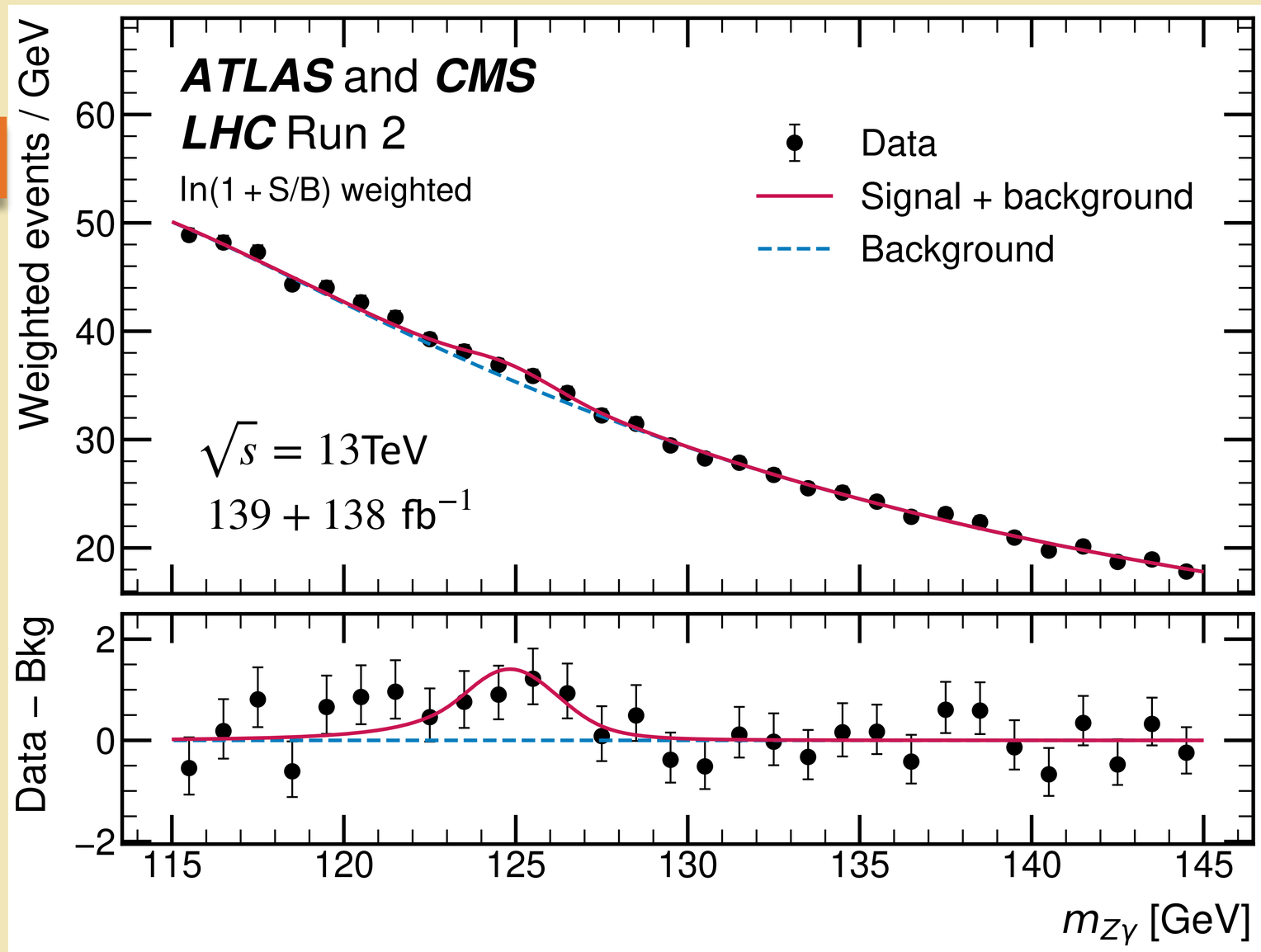
Motivation

- Br(H→Zγ)∼1.5×10^{-3} in the Standard Model (SM)
  - Only via loop, rare decay
- Sensitive to Beyond SM contributing through loops



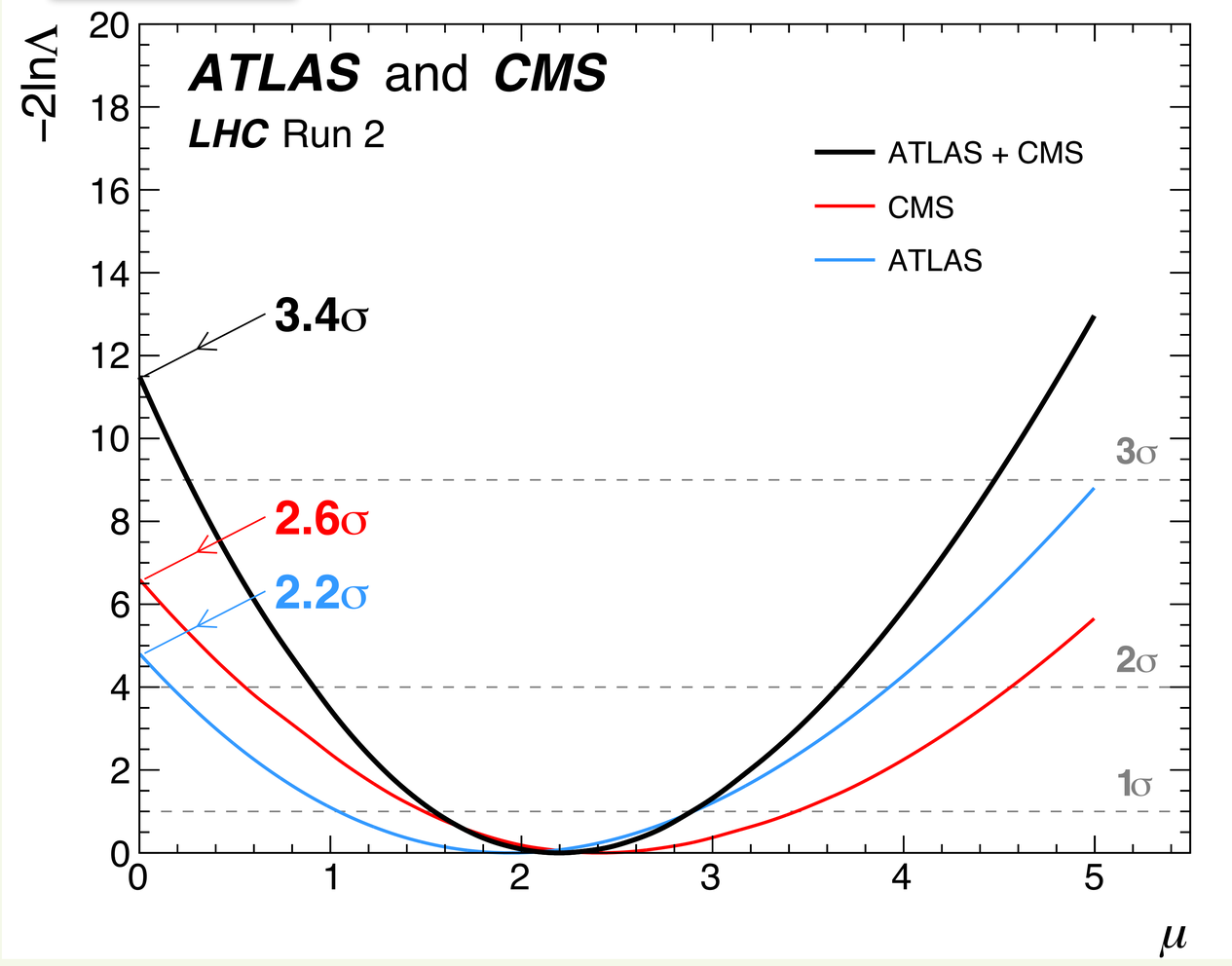
ATLAS + CMS combination

- ATLAS saw excess of 2.2 standard deviations (σ) above bkg expectation in Z to dilepton decay [1]
- CMS saw excess of 2.7σ in the same Z decay [2]
- This work reports the first evidence from a combination of both analyses



Data are weighted by ln(1 + S/B) in each category.

Results



Conclusions

- Evidence for the H→Zγ decay is established with a significance of 3.4σ.
- Observed signal yields of 2.2 ± 0.7 times SM prediction.
- Measured Br(H→Zγ) = (3.4±1.1) × 10^{-3}.
- Results agrees with SM within 1.9 standard deviation.

[1] PLB 809 (2020) 135754. [2] JHEP 05 (2023) 233.