



# Discussion ...

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# Items for discussion

- Precision that can be reached from theory on the SM (including Higgs)  $pp \rightarrow VV$  process ?
  - Prospects on  $qq \rightarrow VV$  process: inclusive and exclusive (discriminant) distributions
    - Data driven  $qq \rightarrow VV$ : fit to  $M_{VV} \rightarrow$  Crucial systematics on  $M$  spectrum
    - DPI WW contribution ?
  - Prospects on  $gg \rightarrow VV$  process inclusive and exclusive (discriminant) distributions
    - K-factors for  $gg \rightarrow VV$  bkg ?
    - NLO for off-shell full  $gg \rightarrow VV$
- Best use of on-shell vs off-shell di-boson measurements:
  - Width vs running  $ggH$  couplings ?
  - Differential fiducial x-section  $d\sigma/dM_{VV}$
- Experimental variables: use of differential distribution on- and off-shell ?
  - ME (already used), mass (full range fit), Angles, Pt and rapidity, jets ?
  - NLO pT predictions for  $ggVV$
- Need coherent description on- and off-shell SM and BSM part ?
- Use of EFT approach (with a few benchmarks: e.g. SUSY light partners of the top, etc.) ?
- Include (SM+BSM) interference effects for on-shell  $H \rightarrow \gamma\gamma$ : important for Mass measurement



# Items for discussion (continued)

- H  $\rightarrow$   $\gamma\gamma$  Background k-Factors: are there any approaches to do something similar as for WW/ZZ?
- Interference (strong) function of di-photon  $p_T$ 
  - Interesting cut to gain sensitivity
  - Fixed order calculation  $p_T$  spectra for signal & background differ very much from state-of-the-art predictions (i.e. are very soft).
  - What can be done to improve the modelling here? In particular wrt to efficiency estimates and shape