



Diboson yellow report

VV section status, plans recommendations

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- Admittedly a bit behind schedule, but proceeding with the same structure as discussed for other sections and in previous meetings
 - Overview of CMS and ATLAS public results
 - Overview of theory state-of-the-art
 - Key lessons and recommendations towards Run 3

- Goal is to enumerate recommendations that can be broadly adopted
 - Caveat: need to be agreed with a critical mass of people
 - Not much value in recommending something, even if “we” think it’s highly motivated, if it will be ignored
 - Requires community input and support

- Presentation of experimental results
 - Consider supporting material (HepData, Rivet) as essential element of the publication
 - Clearly give all cuts and object definitions (leptons, jets) used for fiducial regions. Implementing this in Rivet can be seen as the “definitive” description of selection
 - Comparison of (unfolded) results to the state-of-the-art predictions is maximally encouraged
 - Additional material is highly encouraged. Don't have to publish every distribution imaginable, but can always release multiple plots if they become overly cluttered
 - Presenting results in multiple fiducial is encouraged, as this can enable more convenient comparisons to theory
 - Consider if we agree on a common, simple fiducial region (likely with bigger theory extrapolation)
 - Also presenting one that most closely mimics reco selection should reduce the difficulty of this discussion
 - Our focus has mostly been on SM measurements and predictions, but consider the scope of EFT recommendations. Do we want to push a certain basis (SMEFT?) or is this too big of a can of worms?

- Theoretical tools and results
 - Public tools are highly encouraged
 - When possible, compare to both ATLAS and CMS results
 - If one result is unusable or less usable, why?
➡ Goal of this forum should be to avoid ever encountering this situation!
 - Clearly enumerate which distributions are most interesting for performance evaluation: NNLO most relevant, fixed order unreliable, NLO EW most pronounced
 - Completely obvious to most theorists, but don't take for granted in the experimental community (and keep in mind turnover and training of new people)
 - Clear instructions on what polarisation frames/approximations are most interesting (doesn't have to be just 1) is highly desirable for experimentalist
- Open question that would ideally evolve into recommendations
 - How can we better communicate exactly the conditions a generator was run in? Should we place cards in a public area (and is that sufficient)?
 - What are the major hurdles to making use of state-of-the-art predictions? Inertia? Technical performance or physics validation? Can we set up a better network to push for integration (and to have support)?
 - In particular, NNLOPS not yet used in reco-level analysis (to my knowledge), for Run 3, the time is now!