

Structure of WG2 contributions to the YR4

YR4 chapters:

- I. Standard Model predictions
- II. Beyond the SM predictions
- III. Effective Field Theory predictions
- IV. Measurements and Observables

WG2 contributions

III Effective Field Theory Predictions

III.EFT formalism

- 1 Warsaw basis
- 2 Phenomenological effective Lagrangian and its map to Warsaw basis
- 3 Higgs basis proposal
- 4 Relations to other popular bases (SILH, HISZ, etc - incl. Rosetta)

III.EFT validity

- 1 General caveats, contrasting with concrete BSM of WG3
- 2 Link to WG3 (what would light NP look like)

III.EFT application

- 1 LO EFT tools
 - 1.1 Tools for translations (Rosetta)
 - 1.2 Tools for calculating observables (e.g EHdecay)
 - 1.3 Tools for simulating events (e.g. Madgraph)
 - 1.4 Tools for comparing with experiments (e.g. Sfitter)
- 2 NLO EFT results
 - 2.1 NLO EW
 - 2.2 NLO QCD
- 3 Interpretations in terms of non-linear EFT

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The present EFT note will essentially become this section of chap. III

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- The purpose of this whole chapter is to provide an EFT “theory reference” (specifying in particular common notations, tools, EFT applicability regimes, etc...)
- No explicit recommendations on data analyses

IV Measurements and Observables

IV.1 Introduction

IV.2 Pseudo Observables

- 1 Concept of POs
- 2 Template xsec
 - 2.1 tests how well new physics is covered (using the EFT as general example)
- 3 Continuous POs
 - 3.1 soft EW correction
 - 3.2 hopefully also some production stuff (CP in VBF)

IV.3 Recommendation of LO EFT interpretation of LHC Higgs results

- 1 Assumptions
- 2 Scope
- 3 Limitations

IV.4 Fiducial xsec

- 1 Task force
- 2 Tests how well new physics is covered (using the EFT as general example)

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- The purpose of this chapter is to define the general 3-steps strategy for data analysis:

Fiducial Xs → PO → EFT

The present temp-Xs/PO note will become this section

- The precise order of sections IV. 2-4 still under discussion (*at present this is my favorite order*)

IV.3 Recommendation of LO EFT interpretation of LHC Higgs results

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Specific recommend. for EFT-based analyses will appear here

IV.4 Fiducial xsec

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- 2 Tests how well new physics is covered (using the EFT as general example) . . .