

Points for Discussion/Brainstorming

LHCHXS WG2 meeting on EFT bases
25 Nov 2014

Base story

- Any complete basis leads to a fully equivalent description of LHC processes
- Progress in understanding some subtle issues with relating different bases
- If it was only for the experts, there would be no need to agree on a common approach
- However, the goal is to make EFT approach frequently used in LHC analyses, also by people who have more important things to do than thinking all day about EFT bases
- For this reason, it may be advantageous to agree on the common language used within LHCHSWG

LHCXSWG Basis

- Give the full list of operators and assumptions
- Relate LHC Higgs observables to EFT parameters (fiducial cross sections \rightarrow ... \rightarrow Wilson coefficients)
- Enumerate the parameters that should be varied in LHC analyses (some combinations of parameters are constrained by EWPT at the level that cannot be probed at the LHC)
- ...

To take into account

- Transparent relations between parameters and observables
- Simple way to impose constraints from EWPT
- No obstacles to implement into monte carlo codes
- Flexibility, if application scope needs to be extended
- ...

To discuss

- One basis or more ?
- Pick a redundant or non-redundant set?
- Work with operators or observables ?
- Take into account just LEP or more constraints?
- Loop corrections to observables or just tree level?
- ...

Proposed plan of work

- **Today:** everyone says what bothers her/him and agrees on roadmap and goals
- **After the meeting:** form a combat group charged with preparing a detailed WG2 proposal for EFT language to be used in LHCHXSWG
- **2nd half of January:** proposal presented at the grand meeting of LHCHXSWG
- If consensus reached, it may be used in future EFT excursions of LHCHXSWG

Everyone now

- Give your feedback
- Write to conveners if you want to join the combat group and take part in preparing the proposal:
lhc-higgs-properties-convener@cern.ch
- Follow the progress on WG2 wiki:
[https://twiki.cern.ch/twiki/bin/view/LHCPhysics/
LHCHXSWGFT](https://twiki.cern.ch/twiki/bin/view/LHCPhysics/LHCHXSWGFT)