

WG3 deliverables

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Introduction

- Instead of a summary we quickly review the deliverables of the WG3
- Need feedback from the group and Steering Committee
- Reminder of WG3 domains
 - ◇ Neutral MSSM
 - ◇ Charged MSSM/2HDM
 - ◇ Extended scalars
 - ◇ NMSSM
 - ◇ Exotic Higgs decays
 - ◇ bbH production (with WG1)

MSSM

- The flagship deliverable for a number of years has been the MSSM cross sections and BRs for neutral and charged Higgs in a number of scenarios
 - This has been very successful and will continue to be the highest priority of the neutral and charged MSSM domains
 - Centrally produced cross sections and BRs, identical for both ATLAS and CMS

MSSM

- A number of additional deliverables have been added to the cross sections and the BRs over the years
 - Neutral MSSM:
 - ◇ Higgs p_T distributions in gluon-fusion
 - ◇ studies of new scenarios
 - ◇ comparison of tools (not really new, but now seems that it gains more momentum)
 - Charged MSSM/2HDM:
 - ◇ 4FS vs 5FS comparisons
 - ◇ intermediate mass region: cross sections and MC
 - ◇ s-channel production and decay
 - ◇ production cross sections for generic 2HDM

Extended scalars

- Extended scalars
 - Covers additional singlets, doublets and triplets
 - Recommendations for 2HDM exist for some time **LHCHXSWG-2013-001**, however there was no central production of cross sections and BRs ending up in ATLAS and CMS using similar but not the same
 - Benchmarks for triplets have been produced **LHCHXSWG-2015-001** and used
 - Current activity:
 - ◇ Identify benchmarks for 2HDM and centrally produced numbers
 - ◇ Width and interference issues and recipes (in coordination with WG1 off-shell group)

NMSSM/Exotics

- NMSSM: **New effort**
 - Compilation and comparison of tools for cross sections and BRs
 - First attempt towards benchmarking
- Exotics: **New effort**
 - Provide signature-based simplified models/benchmarks for exotic decays (e.g. flavor changing decays, decays to mesons, displaced vertices, ...) and examine also their feasibility based on trigger considerations, ... ; standardize the presentation/interpretation of results across ATLAS-CMS

bbH

- bbH (in coordination with WG1)
 - Production cross sections in 4FS and 5FS
 - MC for this process and related uncertainties: MG5_aMC, Sherpa, signal acceptance uncertainty, ...