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NMSSM Subgroup of LHC HXSWG3

The NMSSM subgroup is responsible for providing support and recommendations for issues related to the Next-to-Minimal Supersymmetric Standard Model (NMSSM).

Organization

Group conveners:

ATLAS	CMS	THEORY		
Nikolaos Rompotis (Liverpool)	Janek Bechtel (KIT)	Ulrich Ellwanger (LPT Orsay)	Margarete Mühlleitner (KIT)	Nausheen Shah (Wayne)

The conveners can be reached at lh-higgs-nmssm-convener@cern.ch, but only if you already subscribed to the mailing list for the NMSSM subgroup, BSM Higgs (WG3) group, or the general HXSWG. Please see [here](#) for more details.

Meetings

Indico page of the NMSSM subgroup [↗](#)

Mailing lists

How to subscribe to mailing lists

The mail address for the NMSSM Group is lhc-higgs-nmssm@cernNOSPAMPLEASE.ch. All messages are archived here [↗](#).

We recommend to also subscribe to the BSM Higgs mailing list (lhc-higgs-bsm@cernNOSPAMPLEASE.ch) and the general HXSWG mailing list (lhc-higgs@cernNOSPAMPLEASE.ch).

The conveners can be reached at lhc-higgs-nmssm-convener@cernNOSPAMPLEASE.ch, but only if you already subscribed to the mailing list for the NMSSM subgroup, BSM Higgs (WG3) group, or the general HXSWG mentioned above.

SVN repository

The SVN repository for the NMSSM group is at:

<https://svnweb.cern.ch/cern/wsvn/lhchiggsxs/repository/NMSSM/>

If you need to need read or write permissions, please contact the conveners.

Spectrum Calculators

The spectrum calculators under investigation are described at [NMSSMSpectrumCalculators](#).

Benchmark discussions

Updated recommendations March 2020

The information listed here is still under review. Do not use it yet. The March 2020 benchmarks are shown in `NMSSMBenchmarksMarch2020`.

Post YR4 considerations

The discussion after the Yellow Report 4 has focused on two objectives:

- Answer the following question: Is it possible to produce meaningful parameter space planes in a similar way as in the case of the very successful MSSM benchmarks?
- Motivate signatures that are not searched for in the experiments by providing evidence through parameter space scans that there is phase space for which such signatures are accessible in terms of sensitivity.

There is on-going work regarding the search for MSSM-benchmark planes, however, it seems that such a task is very difficult to achieve and most probably a more meaningful/realistic target is the second objective.

With respect to the 2nd objective, there is past and ongoing work to produce evidence from parameter space scans about signatures that are covered and not covered by the experiments. For example, see this paper [1408.1120](#). New benchmark lines for various final states for $H3 \rightarrow H2 + H1$ can be found in `NMSSMBenchmarksPostYR4` and the attachments below.

YR4 points

In the context of Yellow Report 4 the group has studied individual points in the NMSSM parameter space. All the points are described in detail at [NMSSMBenchmarkPoints](#).

Twiki revisions

-- RompotisNikolaos - 2015-01-20

-- EricFeng - 2018-02-12

This topic: LHCPhysics > LHCHWGNMSSM

Topic revision: r52 - 2020-03-29 - unknown



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