

# Final words of the 17th Workshop of the LHC Higgs (XS) WG

from the Steering Committee

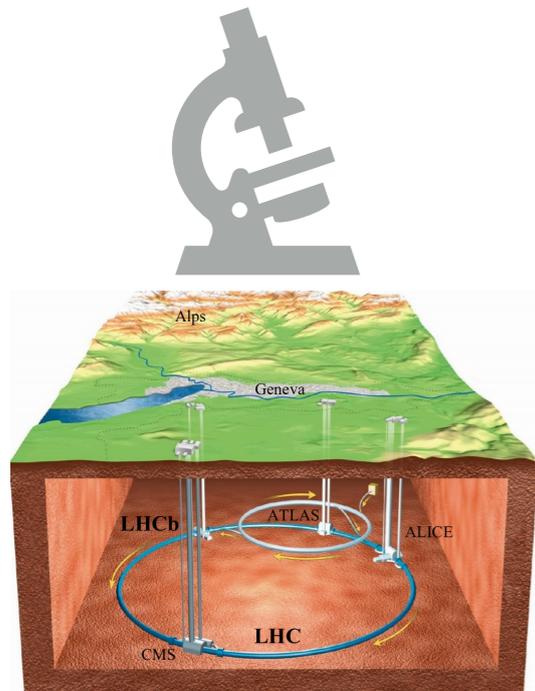
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Veronica Sanz, Robert Harlander, LianTao Wang, Paolo Nason

November 11, 2020

# 10 years of LHC Higgs XS WG

- Long successful history of LHC Higgs Cross Section WG

in 2012  
+ properties and BSM



2010

2011: YR1

[arXiv:1101.0593](https://arxiv.org/abs/1101.0593)

2012: YR2

[arXiv:1201.3084](https://arxiv.org/abs/1201.3084)

Discovery!

2013: YR3

[arXiv:1307.1347](https://arxiv.org/abs/1307.1347)

2016: YR4

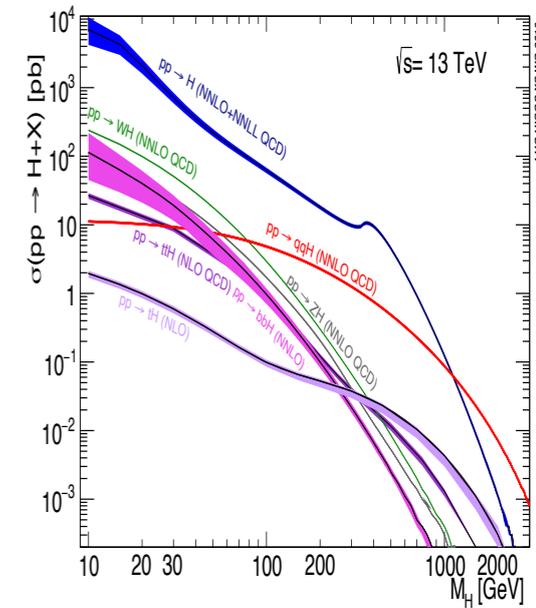
[arXiv:1610.07922](https://arxiv.org/abs/1610.07922)

LHC Run-2

2020

LHC Run-3

YR5 ?



# LHC Higgs WG

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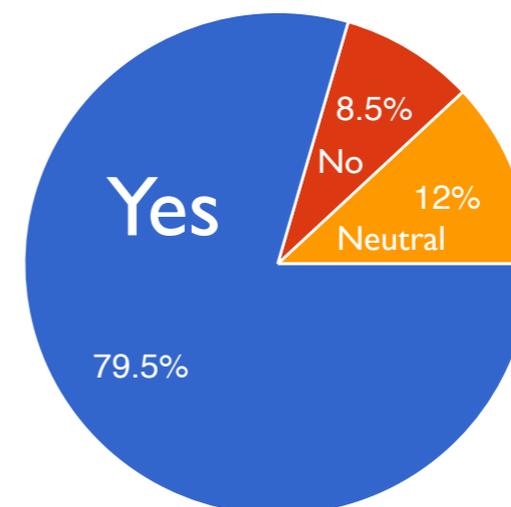
- Long successful history of **LHC Higgs Cross Section WG**
  - first created in 2010, to predict (unknown mass) Higgs boson production (and decay)
  - the scope of the group grew over the decade, properties and BSM in 2012
- Suggestion to change the name to **LHC Higgs WG**
  - address significantly enlarged scope of the group, easier to pronounce...
  - suggestion came from our “younger” active colleagues, no political agenda
  - hesitated somewhat due to the long history of established name...

- **We decided to ask you:**

- first asked many people informally
- then ran a google survey of > 100 people
- overwhelming support

Do you support the name LHC Higgs WG

117 responses



# LHC Higgs WG

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- We agreed to make a transition at this Workshop
  - some logistical question arise
  - new abbreviation **LHCHWG** to be adopted
  - old abbreviation **LHCHXSWG** can continue in the old locations  
(we do not need an effort to eliminate it from existing pages, links, etc...)
  - e.g. social media for this workshop: **#LHCHWG2020**
  - starting in 2021: **LHCHWG-2021-001**, etc... new naming scheme to be adopted
  - considering: <https://twiki.cern.ch/twiki/bin/view/LHCPhysics/LHCHWG>
    - 2014-2020: <https://twiki.cern.ch/twiki/bin/view/LHCPhysics/LHCHXSWG>
      - redirect to a new location if changed (with all history)
    - 2012-2013: <https://twiki.cern.ch/twiki/bin/view/LHCPhysics/CrossSections>
      - clear link to a new location
    - 2010-2011: <https://twiki.cern.ch/twiki/bin/view/LHCPhysics/CrossSections2011>
      - clear link to a new location

# LHC Higgs WG Publications

- Check our Library page for records, procedures, rules:

<https://twiki.cern.ch/twiki/bin/view/LHCPhysics/LHCHXSWGLibrary>

- More focus on **Official (Public) Reports**, until critical mass for **YR5** — may start as **Internal Notes**

**Public Notes, Official Report** (Interim Recommendation/Report/Proceedings, etc.)

- The list of official notes is updated through May 2020. More recent notes can be found at this CDS link: [CDS list for all official notes since 2015](#)
- Please check [Instruction for front page style](#) for Public Notes and Official Reports.

LHCHXSWG Report Number	Git/SVN	CDS	arXiv	Title
LHCHXSWG-2019-006		<a href="#">CDS</a>	<a href="#">arXiv:2009.01249</a>	BSM Benchmarks for Effective Field Theories in Higgs and Electroweak Physics
LHCHXSWG-2019-005		<a href="#">CDS</a>	<a href="#">arXiv:1910.00012</a>	Higgs boson potential at colliders: status and perspectives
LHCHXSWG-2019-004		<a href="#">CDS</a>		Constraining EFT parameters using simplified template cross sections
LHCHXSWG-2019-003	<a href="#">Git</a>	<a href="#">CDS</a>	<a href="#">arXiv:1906.02754</a>	Simplified Template Cross Sections – Stage 1.1
LHCHXSWG-2019-002		<a href="#">CDS</a>	<a href="#">arXiv:2005.07762</a>	Recommended predictions for the boosted-Higgs cross section ( <b>CDS upload complete -- arxiv should still be updated.</b> )
LHCHXSWG-2019-001		<a href="#">CDS</a>		Higgs boson cross sections for the high-energy and high-luminosity LHC: cross-section predictions and theoretical uncertainty projections
LHCHXSWG-2016-001		<a href="#">CDS</a>		Analytical parametrization and shape classification of anomalous HH production in EFT approach
LHCHXSWG-2015-002		<a href="#">CDS</a>		Benchmark scenarios for low tan beta in the MSSM
LHCHXSWG-2015-001		<a href="#">CDS</a>		Recommendations for the interpretation of LHC searches for $H_5^0$ , $H_5^\pm$ , and $H_5^{\pm\pm}$ in vector boson fusion with decays to vector boson pairs
LHCHXSWG-2013-001			<a href="#">arXiv:1312.5571</a>	Interim recommendations for the evaluation of Higgs production cross sections and branching ratios at the LHC in the Two-Higgs-Doublet Model
LHCHXSWG-2012-001	<a href="#">SVN</a>		<a href="#">arXiv:1209.0040</a>	LHC HXSWG interim recommendations to explore the coupling structure of a Higgs-like particle
			<a href="#">arXiv:1107.5909</a>	Standard Model Higgs-Boson Branching Ratios with Uncertainties



When do we reach critical mass for **YR5**?..

# LHC Higgs WG Outlook

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- Thanks to all **speakers** for wonderful contributions!
- Thanks to all **WG members** for your efforts!

**348** registered participants at this Workshop

**377** authors of YR4 ([arXiv:1610.07922](https://arxiv.org/abs/1610.07922))

**675** registered WG members at e-groups

- Looking forward to hearing from you through the **WG activities!**



**2021**

**18th Workshop of the LHC Higgs WG**

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# END OF THE 17th WORKSHOP

you can go to break-out rooms if time allows  
(see links in the individual indico entries)

those who want to chat with the  
Steering Committee members  
can stay in this Zoom room