

# **WG1 introduction**

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# WG1 overview

## Goals and structure

- WG1 focuses on SM Higgs xsections and branching ratios
  - Works also on modelling of main backgrounds for SM xsection measurements
  - Includes also subgroup dedicated to off-shell cross-section and interference w/ continuum background
- WG1 is organised in subgroups (one per production modes + BR + off-shell)

# WG1 organisation

## Group and subgroup conveners

Group TWiki	ATLAS	CMS	THEORY		
<a href="#">BR (WG1)</a>	<a href="#">Daniela Rebutti (Pavia)</a>	<a href="#">Ivica Puljak (Split)</a>	<a href="#">Ansgar Denner (Würzburg)</a>	<a href="#">Sven Heinemeyer (IFCA)</a>	<a href="#">Alexander Mück (Aachen)</a>
<a href="#">ggF (WG1)</a>	<a href="#">Kathrin Becker (Freiburg)</a>	<a href="#">Andrea Massironi (Northeastern U)</a>	<a href="#">Bernhard Mistlberger (SLAC)</a>	<a href="#">Emanuele Re (Annecy)</a>	
<a href="#">VBF (WG1)</a>	<a href="#">Antonio De Maria (Nanjing University)</a>	<a href="#">Yacine Haddad (Imperial College)</a>	<a href="#">Alexander Karlberg (Univ. of Zurich)</a>	<a href="#">Simon Plaetzer (University of Vienna)</a>	
<a href="#">VH (WG1)</a>	<a href="#">Thomas Calvet (Stonybrook)</a>	<a href="#">Chris Palmer (Princeton)</a>	<a href="#">Ciaran Williams (Buffalo)</a>	<a href="#">Giancarlo Ferrera (University of Milan)</a>	
<a href="#">ttH/tH (WG1)</a>	<a href="#">Maria Moreno Llacer (IFIC / CSIC-U.Valencia)</a>	<a href="#">Joshua Thomas-Wilsker (IHEP, Beijing)</a>	<a href="#">Stefano Pozzorini (Univ. of Zurich)</a>	<a href="#">Laura Reina (Florida State Univ.)</a>	
<a href="#">Offshell (WG1)</a>	<a href="#">Lailin Xu (Brookhaven BNL)</a>	<a href="#">Ulacan Sarica (Univ. California Santa Barbara)</a>	<a href="#">Nikolas Kauer (Royal Holloway)</a>	<a href="#">Raoul Roentsch (KIT)</a>	

- Change-of-the guard of several WG1 group and subgroup conveners will take place soon after the meeting
  - Alicia -> Julie Malcles ; Chris -> Alessandro Calandri ; more names to be announced in coming weeks (stepping down or stepped down: Kathrin, Emanuele, Maria, Fabrizio, Giovanni)
  - A big thank you to the outgoing subgroup conveners for their excellent work, and good luck to the incoming ones!

# WG1 recent activities

- Various activities in the past year, including
  - Signal:
    - Parton-shower uncertainties (VBF,  $gg \rightarrow ZH$ )
    - Uncertainties on STXS cross-sections (various production modes)
    - Boosted Higgs x-sections
  - Background:
    - modelling of main backgrounds for  $ttH$  ( $tt+bb$ ,  $tt+V$ )
  - Off-shell and interference: comparison of generators, theory uncertainty treatment, interpretations (EFT, BSM models, ..)

# Meeting agenda

## WG1 (today)

- 13:00** **Welcome and introduction**
- 13:15** **PDFs: PDF4LHC20 (\*)**  
Zoom session for discussion during coffee break:  
Meeting ID: 936 3849 1822 (Password of general zoom session)  
**Speaker:** Joey Huston (Michigan State University (US))
- 13:40** **ggF: heavy Higgs xsections**  
**Speaker:** Bernhard Mistlberger (SLAC National Accelerator Laboratory (US))
- 13:55** **VBF: (Soft) QCD effects in VBF/VBS**  
**Speaker:** Simon Plaetzer (ITP, Universitaet Karlsruhe)
- 14:20** **VH: experimental and theory review (\*)**  
Zoom session for discussion during coffee break:  
Meeting ID: 914 6209 0965 (Password of general zoom session)  
**Speaker:** Philipp Windischhofer (University of Oxford (GB))  
 HXSWG\_VH.pdf
- 14:45** **ttH: experimental new results and studies (\*)**  
Zoom session for discussion during coffee break:  
Meeting ID: 999 4846 4303 (Password of general zoom session)  
**Speaker:** Dr Maria Moreno Llacer (Univ. of Valencia and CSIC (ES))
- 15:05** **ttH: theoretical studies of ttH backgrounds (\*)**  
Zoom session for discussion during coffee break:  
Meeting ID: 999 4846 4303 (Password of general zoom session)  
**Speaker:** Laura Reina (Florida State University (US))
- 15:25** **Offshell: theory and experimental developments**  
**Speaker:** Raoul Horst Rontsch

## Do not miss also cross-WG session tomorrow

- 16:10** → 19:00 **Cross cutting topics**  
**Conveners:** Alicia Calderon Tazon (Universidad de Cantabria and CSIC (ES)), Giuliano Panico (University of Florence and INFN Florence), Javier Mazzitelli, Zhen Liu (U of Maryland)
- 16:10** **On the  $y_b$  sensitivity of  $bbH$**  ⌚ 15m  
**Speaker:** Marco Zaro (Università degli Studi e INFN Milano (IT))
- 16:30** **Top mass scheme and scale uncertainties** ⌚ 20m  
**Speaker:** Michael Spira (Paul Scherrer Institute (CH))
- 17:00** **ggF uncertainty** ⌚ 20m  
**Speakers:** Jonathon Mark Langford (Imperial College (GB)), Syed Haider Abidi (Brookhaven National Laboratory (US))
- 17:30** **STXS uncertainties in VBF/VH/ttH bins** ⌚ 20m  
**Speaker:** Yacine Haddad (Northeastern University (US))
- 18:00** **STXS EFT interpretation** ⌚ 20m  
**Speaker:** Ana Rosario Cueto Gomez (Centre National de la Recherche Scientifique (FR))
- 18:30** **Higgs boson cross sections across a wide range of masses: use cases and plans** ⌚ 30m