

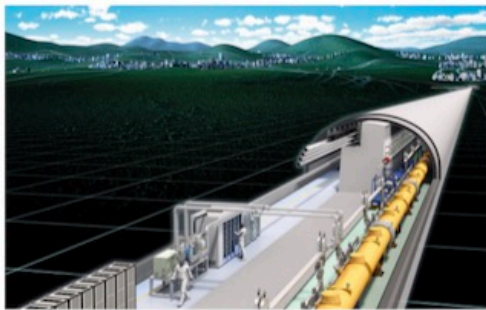
# ECFA Higgs initiative update ILC-Europe, 23 March 2022

Aidan Robson

# ECFA Workshops on $e^+e^-$ top/EWK/Higgs Factory . . . .

*ECFA recognizes the need for the experimental and theoretical communities involved in physics studies, experiment designs and detector technologies at future Higgs factories to gather. **ECFA supports a series of workshops** with the aim to **share challenges and expertise, to explore synergies in their efforts** and to respond coherently to this priority in the European Strategy for Particle Physics (ESPP).*

*Goal: bring the entire  $e^+e^-$  Higgs factory effort together, foster cooperation across various projects; collaborative research programmes are to emerge*



- Mandated by Plenary ECFA statement July 2020
- Study has been launched
- Working groups have started their activities
- Topical meetings are ongoing

Main entry portal: <https://indico.cern.ch/event/1044297/>

# WG1 Physics Potential



- ◆ Conveners: Juan Alcaraz (CIEMAT - Madrid), Jenny List (DESY),  
Fabio Maltoni (UC Louvain / Bologna), Jorge de Blas (Granada)  
[Jorge replaces James Wells]

- ◆ Five sub-activities have been started:

## WG1-PREC (Precision in theory & experiment):

Ayres Freitas (Pittsburgh), Paolo Azzurri (Pisa), Adrian Irlles (Valencia), Andreas Meyer (DESY)  
ecfa-whf-wg1-prec-conveners

## WG1-GLOB (Global interpretations in (SM)EFT and UV complete models):

Sven Heinemeyer (IFCA/IFT), Alexander Grohsjean (DESY), Junping Tian (Tokyo),  
Marcel Vos (Valencia), Jorge de Blas (Granada)  
ecfa-whf-wg1-glob-conveners

## WG1-HTE (TOP-HIGGS-EW and connection with LHC):

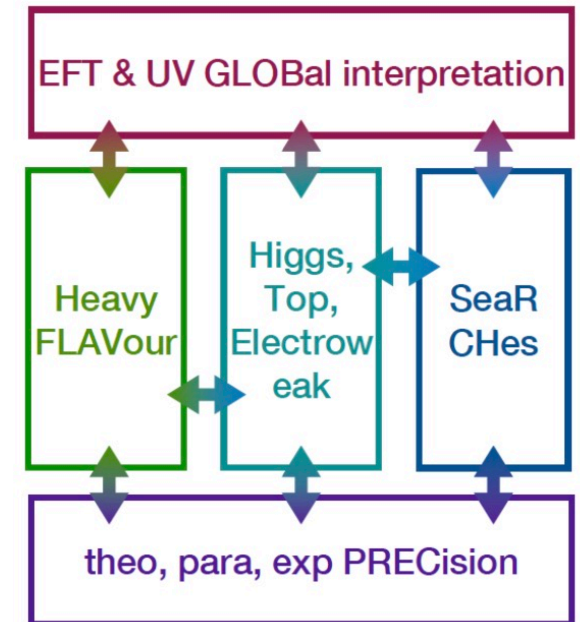
Chris Hays (Oxford), Karsten Koeneke (Freiburg), Fabio Maltoni (Louvain)  
ecfa-whf-wg1-hte-conveners

## WG1-FLAV (Heavy Flavours):

David Marzocca (Trieste), Stephane Monteil (Clermont Ferrand), Pablo Goldenzweig (KIT)  
ecfa-whf-wg1-flav-conveners

## WG1-SRCH (Feebly interacting particles, direct low mass searches):

Roberto Franceschini (Rome III), Rebeca Gonzalez (Uppsala), Filip Zarniecki (Warsaw)  
ecfa-whf-wg1-srch-conveners



sign up to WG1 email lists in CERN egroups:

ECFA-WHF-WG1-XXXX (XXXX= { "GLOB" , "PREC" , "HTE" , "FLAV" , "SRCH" })



# WG1 Physics Potential



- ◆ Activities all linked from:

<https://indico.cern.ch/event/1044297/page/23971-wg1-group-activities>

- ◆ Seminar series launched, Fridays at 14h [one or more speakers]

4 March: Implications of  $(g-2)_\mu$  for e<sup>+</sup>e<sup>-</sup> Higgs factories: an overview

8 April: Physics with light quarks

- ◆ Mini workshops underway / planned:

**WG1-PREC** (Precision in theory & experiment):

Mini workshops on high-precision measurements and parametric uncertainties:  $\alpha_s$  took place 8 & 10 March

**WG1-GLOB** (Global interpretations in (SM)EFT and UV complete models):

Will pick up Snowmass SMEFT fitting activities in summer

**WG1-HTE**

First workshop taking place at CERN 20–22 April – *registration open*

One afternoon each for Higgs, top, EWK

<https://indico.cern.ch/event/1132480/>

**WG1-FLAV** (Heavy Flavours):

Aiming for first workshop May/June

**WG1-SRCH** (Feebly interacting particles, direct low mass searches):

Brainstorming session took place 22 February

# WG2 Physics Analysis Methods



- ◆ Conveners: Patrizia Azzi (INFN-Padova / CERN), Fulvio Piccinini (INFN Pavia) and Dirk Zerwas (IJCLab)

- ◆ Topical meeting series underway:

– First Topical Meeting on **Generators**, 9-10 Nov 2021 (hybrid at CERN):

<https://indico.cern.ch/event/1078675/>

118 registered

(common workshop for WG1 and WG2)

– Second Topical Meeting on **Simulation**, 1-2 Feb 2022 (remote):

<https://indico.cern.ch/event/1097819/>

141 registered

– Third Topical Meeting on **Reconstruction** scheduled for 4-5 May 2022 (hybrid at DESY – *registration is open!* – *current in-person capacity is 50*)

<https://indico.cern.ch/event/1124095/>

currently 31 registered

Topics arising are being followed up in dedicated focus meetings

– e.g. on Beamstrahlung, 12 January 2022

65 registered

Activities announced via ECFA-Workshop-Higgs-factory egroup

# WG3 Detector R&D



- ◆ Following publication of the 2021 ECFA detector R&D roadmap, CERN Council mandated ECFA to develop an implementation plan

*The Council agreed to invite ECFA and the LDG to elaborate, in close collaboration with the SPC, the funding agencies and the relevant research organisations in Europe and beyond, detailed implementation plans setting out milestones, priorities and funding sources, for consideration by the Council at its Session in March 2022.”*



→ discussion ongoing, on how activities of a potential WG3 could be aligned with the roadmap implementation

# 2022 ECFA $e^+e^-$ Workshop in Hamburg

## 5–7 October



- ◆ Several very strong proposals to host the 2022 workshop
    - many thanks to everyone!
- 2022 workshop will take place at DESY, 5–7 October



- Status of WG activities
- Discussion of future plans
- Interaction between theory and experiments

Registration will open soon

Possibility for ‘satellite meetings’ the day before; please communicate interest as soon as possible