

# ECFA Higgs/Top/EW WG meeting on Z-pole measurements at e+e- colliders



## WG1 HTE subgroup conveners:

[ecfa-whf-wg1-hte-conveners@cern.ch](mailto:ecfa-whf-wg1-hte-conveners@cern.ch)

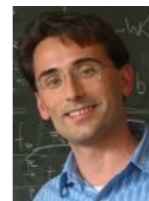
Chris Hays,  
Oxford University



Karsten Köneke,  
Freiburg University



Fabio Maltoni,  
University of Louvain



**23 September 2022**

# Higgs/Top/EW working group

Subgroup of WG1 on physics potential

The group activities consist of the study of potential Higgs, top, & EW measurements not covered by the Precision and Flavour topical subgroups

A component of the mandate is to identify measurements that can be performed at the HL-LHC to increase the physics potential of an  $e^+e^-$  Higgs/Top/EW factory

A link to the working group twiki can be found on the WG1 page:

<https://twiki.cern.ch/twiki/bin/view/ECFA/ECFAHiggsFactoryWG1>

# Higgs/Top/EW WG activities

Kick-off workshop at CERN April 20-22

Reviewed e+e- and LHC studies including from Snowmass  
Sessions on Higgs, top, Electroweak, and quark fragmentation/tagging  
<https://indico.cern.ch/event/1132480/>

Following up with half-day meetings covering physics at each e+e- CM energy  
Z-pole meeting today: overview; rare decays; fragmentation/hadronization  
<https://indico.cern.ch/event/1196494/>

14:00 → 14:10 **Introduction** ⌚ 10m

**Speakers:** Chris Hays (University of Oxford (GB)), Prof. Fabio Maltoni (Universite Catholique de Louvain (UCL) (BE) and Università di Bologna), Karsten Koeneke (Albert Ludwigs Universitaet Freiburg (DE))

14:15 → 14:45 **Overview of the e+e- Z pole programme** ⌚ 30m

**Speaker:** Christophe Grojean (DESY (Hamburg) and Humboldt University (Berlin))

15:00 → 15:20 **Rare decays in the vSMEFT** ⌚ 20m

**Speaker:** Dr Mikael Chala (University of Granada)

15:30 → 15:50 **Exotic decays** ⌚ 20m

**Speakers:** Dr Emidio Gabrielli (Nat. Inst. of Chem.Phys. & Biophys. (EE)), Emidio Gabrielli (Helsinki Institute of Physics HIP)

16:00 → 16:30 **Measurements to constrain parton shower and hadronization models** ⌚ 30m

**Speaker:** Frank Martin Krauss (University of Durham (GB))

16:40 → 17:00 **LHC studies of hadronization and string models** ⌚ 20m

**Speaker:** Sarka Todorova (Charles University (CZ))

# First ECFA WORKSHOP.

on  $e^+e^-$  Higgs / Electroweak / Top Factories  
5-7 October 2022, DESY, Hamburg

## Topics:

- Physics potential of future Higgs and electroweak/top factories
- Required precision (experimental and theoretical)
- EFT (global) interpretation of Higgs factory measurements
- Reconstruction and simulation
- Software
- Detector R&D

## INTERNATIONAL ADVISORY COMMITTEE

A. Blondel (Geneva)  
J.-C. Brient (Paris LLR)  
P. Conde Muino (IST/LIP)  
D. Contardo (IN2P3)  
M. Dam (Copenhagen NBI)  
J. Fuster (Valencia)  
J. D'Hondt (VU Brussel)  
C. Grojean (DESY)  
K. Jakobs (Freiburg, Chair)  
P. Janot (CERN)  
M. Klein (Liverpool)  
T. Lesiak (Krakow)  
C. Meroni (Milano)  
J. Mnich (CERN)  
A. Nisati (Rome I)  
A. Robson (Glasgow)  
F. Simon (Munich MPP)  
S. Stapnes (CERN)  
R. Tenchini (Pisa)  
G. Wilkinson (Oxford)  
A. Wulzer (Lausanne)

## LOCAL ORGANISING COMMITTEE

T. Behnke  
F. Blekman  
F. Gaede  
E. Gallo  
A. Grohsjean  
C. Grojean  
J. Haller  
K. Krüger  
G. Moortgat-Pick (Chair)  
K. Peters  
J. Reuter  
C. Schwanenberger (Chair)  
F. Seikow  
M. Stanitzki  
G. Weiglein

The European Committee for Future Accelerators (ECFA) organises a series of workshops on physics studies, experiment design and detector technologies towards a future electron-positron Higgs/Electroweak/Top factory.

The aim is to bring together the efforts of various  $e^+e^-$  projects, to share challenges and expertise, to explore synergies, and to respond coherently to this high-priority item of the European Strategy for Particle Physics

Plenary and parallel sessions  
for all working groups

Registration closes September 25 (Sunday)

Zoom connection available

The Physics Potential working group also  
organizes ~monthly seminars

Topics so far have covered:

implications of  $g-2$

physics with light quarks

Higgs self-coupling

precision physics at WW threshold