

Higgs 2020



Report of Contributions

Contribution ID: 1

Type: **not specified**

Experimental overview of Higgs physics (25'+5')

Monday, October 26, 2020 5:30 PM (30 minutes)

Presenter: OLSEN, Jim (Princeton University (US))

Session Classification: Plenary

Contribution ID: 2

Type: **not specified**

The Higgs boson and the understanding of the Universe (25'+5')

Monday, October 26, 2020 6:00 PM (30 minutes)

Presenter: MURAYAMA, Hitoshi (University of California Berkeley (US))

Session Classification: Plenary

Contribution ID: 3

Type: **not specified**

Highlights of ATLAS experimental results (25'+5')

Monday, October 26, 2020 1:00 PM (30 minutes)

Presenter: MORLEY, Anthony (CERN)

Session Classification: Plenary

Contribution ID: 4

Type: **not specified**

Highlights of CMS experimental results (25'+5')

Monday, October 26, 2020 1:30 PM (30 minutes)

Presenter: Dr VISCHIA, Pietro (Universite Catholique de Louvain (UCL) (BE))

Session Classification: Plenary

Contribution ID: 5

Type: **not specified**

Welcome Presentation (25'+5')

Monday, October 26, 2020 12:30 PM (30 minutes)

Presenter: MERIDIANI, Paolo (Sapienza Universita e INFN, Roma I (IT))

Session Classification: Plenary

Contribution ID: 6

Type: **not specified**

Theory predictions for SM Higgs (25'+5')

Monday, October 26, 2020 2:20 PM (30 minutes)

Presenter: DE FLORIAN, Daniel (Laboratorio de Fisica Teorica Departamento de Fisica)

Session Classification: Plenary

Contribution ID: 7

Type: **not specified**

Precision measurements of Higgs mass, width and CP properties (25'+5')

Monday, October 26, 2020 3:20 PM (30 minutes)

Presenter: VAN DE KLUNDERT, Merijn (Deutsches Elektronen-Synchrotron (DE))

Session Classification: Plenary

Contribution ID: 8

Type: **not specified**

Precision measurements of Higgs rates and differential cross sections (25'+5')

Monday, October 26, 2020 2:50 PM (30 minutes)

Presenter: DAO, Valerio (CERN)

Session Classification: Plenary

Contribution ID: 9

Type: **not specified**

Measurements Higgs decays to muons, taus and charm (25'+5')

Monday, October 26, 2020 4:10 PM (30 minutes)

Presenter: MARINI, Andrea Carlo (Massachusetts Inst. of Technology (US))

Session Classification: Plenary

Contribution ID: 10

Type: **not specified**

Measurements of associate VH production (incl. H->bb) (25'+5')

Monday, October 26, 2020 4:40 PM (30 minutes)

Presenter: Dr MASTROLORENZO, Luca (Rheinisch Westfaelische Tech. Hoch. (DE))

Session Classification: Plenary

Contribution ID: 11

Type: **not specified**

Measurements of Higgs VBF production (25'+5')

Tuesday, October 27, 2020 4:40 PM (30 minutes)

Presenter: LIANG, Zhijun (Chinese Academy of Sciences (CN))

Session Classification: Plenary

Contribution ID: 12

Type: **not specified**

Measurements of associate VH production (incl. H->bb)

Session Classification: Plenary

Contribution ID: 13

Type: **not specified**

Theory predictions for HH and combinations with single Higgs

Presenter: JONES, Stephen Philip (CERN)

Session Classification: Plenary

Contribution ID: 14

Type: **not specified**

Searches for diHiggs (incl projections) I

Session Classification: Plenary

Contribution ID: 15

Type: **not specified**

Searches for diHiggs (incl projections) at ATLAS

Session Classification: Plenary

Contribution ID: 16

Type: **not specified**

Predictions for Higgs self-coupling

Session Classification: Plenary

Contribution ID: 17

Type: **not specified**

Non-SM Higgs, experiment (searches for BSM Higgs)

Contribution ID: **18**

Type: **not specified**

Searches for BSM Higgs (25'+5')

Wednesday, October 28, 2020 4:30 PM (30 minutes)

Presenter: MARTINEZ OUTSCHOORN, Verena Ingrid (University of Massachusetts (US))

Session Classification: Plenary

Contribution ID: 19

Type: **not specified**

Non-SM Higgs, new perspectives (25'+5')

Wednesday, October 28, 2020 4:00 PM (30 minutes)

25' (5' discussion)

Presenter: CRAIG, Nathaniel (UC Santa Barbara)

Session Classification: Plenary

Contribution ID: 20

Type: **not specified**

Searches for exotic Higgs decays (25'+5')

Wednesday, October 28, 2020 5:30 PM (30 minutes)

Presenter: MAIER, Benedikt (Massachusetts Inst. of Technology (US))

Session Classification: Plenary

Contribution ID: 21

Type: **not specified**

Non-SM Higgs signatures (25'+5')

Wednesday, October 28, 2020 5:00 PM (30 minutes)

Presenter: SHELTON, Jessie (Yale University)

Session Classification: Plenary

Contribution ID: 22

Type: **not specified**

Progress in EFTs for Higgs Physics

Presenter: RIVA, Francesco (Universite de Geneve (CH))

Session Classification: Plenary

Contribution ID: 23

Type: **not specified**

Experimental inputs to global fits

Session Classification: Plenary

Contribution ID: 24

Type: **not specified**

Experiment: PDF

Session Classification: Plenary

Contribution ID: 25

Type: **not specified**

Global fits

Presenter: PINTO EBOLI, Oscar Jose (Federal University of of Rio de Janeiro (BR))

Session Classification: Plenary

Contribution ID: 26

Type: **not specified**

New experimental analysis techniques (25'+5')

Friday, October 30, 2020 12:30 PM (30 minutes)

Presenter: CRANMER, Kyle Stuart (New York University (US))

Session Classification: Plenary

Contribution ID: 27

Type: **not specified**

Theory perspective on new analysis and theoretical techniques (25'+5')

Friday, October 30, 2020 1:00 PM (30 minutes)

Presenter: KLING, Felix (SLAC)

Session Classification: Plenary

Contribution ID: 28

Type: **not specified**

Monte Carlo challenges for the future (25'+5')

Friday, October 30, 2020 1:30 PM (30 minutes)

Presenter: HOECHE, Stefan (Fermilab)

Session Classification: Plenary

Contribution ID: 29

Type: **not specified**

Prospect for Higgs physics at Future Colliders - Theory perspective (25'+5')

Friday, October 30, 2020 3:00 PM (30 minutes)

Presenter: REINA, Laura (Florida State University (US))

Session Classification: Plenary

Contribution ID: 30

Type: **not specified**

Prospect for Higgs physics at Future Colliders - Experimental perspective (25'+5')

Friday, October 30, 2020 2:00 PM (30 minutes)

Presenter: VERNIERI, Caterina (SLAC National Accelerator Laboratory (US))

Session Classification: Plenary

Contribution ID: 31

Type: **not specified**

Experimental prospects for Higgs Physics in future LHC Runs (25'+5')

Friday, October 30, 2020 3:30 PM (30 minutes)

Presenter: SAVARD, Pierre (University of Toronto (CA))

Session Classification: Plenary

Contribution ID: 32

Type: **not specified**

Closing remarks

Friday, October 30, 2020 4:30 PM (20 minutes)

Presenter: PLEHN, Tilman

Session Classification: Plenary

Contribution ID: 33

Type: **not specified**

Experimental inputs to PDF fits (25'+5')

Tuesday, October 27, 2020 5:40 PM (30 minutes)

Presenter: AMOROSO, Simone (Deutsches Elektronen-Synchrotron (DE))

Session Classification: Plenary

Contribution ID: 41

Type: **not specified**

Measurements of associate top-Higgs production modes (25'+5')

Tuesday, October 27, 2020 5:10 PM (30 minutes)

Presenter: BOTTA, Valeria (Deutsches Elektronen-Synchrotron (DE))

Session Classification: Plenary

Contribution ID: 42

Type: **not specified**

Searches for diHiggs (incl projections) II

Session Classification: Plenary

Contribution ID: 43

Type: **not specified**

An outlook on physics with the Higgs boson (25'+5')

Friday, October 30, 2020 4:00 PM (30 minutes)

Presenter: GROJEAN, Christophe (DESY (Hamburg) and Humboldt University (Berlin))

Session Classification: Plenary

Contribution ID: 44

Type: **EFT Session**

geoSMEFT and applications

We develop the geometric formulation of the Standard Model Effective Field Theory (SMEFT). Using this approach we derive all-orders results in the vev expansion relevant for studies of electroweak precision and Higgs data, as reported in <https://arxiv.org/pdf/2001.01453.pdf>. Then using this formalism we report the first exact formalism to sub-leading order in the vev expansion as applied to Higgs data as reported in <https://arxiv.org/abs/2007.00565>.

Author: TROTT, Michael Robert (University of Copenhagen (DK))

Contribution ID: 45

Type: **not specified**

Predictions for Higgs Self Coupling (25'+5')

Session Classification: Plenary

Contribution ID: 46

Type: **not specified**

Searches for diHiggs I (25'+5')

Thursday, October 29, 2020 2:20 PM (30 minutes)

Presenter: BROST, Elizabeth (Brookhaven National Laboratory (US))

Session Classification: Plenary

Contribution ID: 47

Type: **not specified**

Searches for diHiggs II (25'+5')

Thursday, October 29, 2020 2:50 PM (30 minutes)

Presenter: BETHANI, Agni (Universite Catholique de Louvain (UCL) (BE))

Session Classification: Plenary

Contribution ID: 48

Type: **not specified**

Theory Predictions for HH and Combinations with Single Higgs (25'+5')

Thursday, October 29, 2020 3:20 PM (30 minutes)

Presenter: JONES, Stephen Philip (CERN)

Session Classification: Plenary

Contribution ID: 49

Type: **not specified**

Progress in EFT for Higgs physics (25'+5')

Thursday, October 29, 2020 4:30 PM (30 minutes)

Presenter: RIVA, Francesco (Universite de Geneve (CH))

Session Classification: Plenary

Contribution ID: 50

Type: **not specified**

Experimental Inputs to EFT Fits (25'+5')

Thursday, October 29, 2020 5:00 PM (30 minutes)

Presenter: FALKE, Saskia (CERN)

Session Classification: Plenary

Contribution ID: 51

Type: **not specified**

Global Fits (25'+5')

Thursday, October 29, 2020 5:30 PM (30 minutes)

Presenter: PINTO EBOLI, Oscar Jose (Federal University of of Rio de Janeiro (BR))

Session Classification: Plenary

Contribution ID: 52

Type: **Yukawa Session**

Higgs prospects with LHCb and its upgrades

Thanks to the excellent vertex reconstruction system, the LHCb detector has demonstrated its capabilities in the identification of b- and c-jets.

The LHCb upgrades could be used to measure the $H \rightarrow bb$ production in a region complementary to ATLAS and CMS, and to search for the $H \rightarrow cc$ decay.

In this talk the jet heavy flavour tagging algorithm used at LHCb is reviewed, and measurements with b- and c-jets are presented.

Moreover the LHCb sensitivity to the $H \rightarrow bb$ and $H \rightarrow cc$ observations is discussed, and prospects on the forward Higgs physics in the future LHC data taking periods are given.

Authors: RICCIARDI, Stefania (Science and Technology Facilities Council STFC (GB)); LHCb COLLABORATION; SESTINI, Lorenzo (Universita e INFN, Padova (IT))

Presenter: LHCb COLLABORATION

Session Classification: Parallel

Contribution ID: 53

Type: **EFT Session**

Putting SMEFT Fits to Work

The Standard Model Effective Field Theory (SMEFT) provides a consistent framework for comparing precision measurements at the LHC to the Standard Model (SM). The observation of statistically significant non-zero SMEFT coefficients would correspond to physics beyond the SM (BSM) of some sort. A more difficult question to answer is what, if any, detailed information about the nature of the underlying high scale model can be obtained from these measurements (the “Higgs Inverse Problem”). In this work, we consider the patterns of SMEFT coefficients in five example models and discuss the assumptions inherent in using global fits to make BSM conclusions. As a by-product of our study, we present an up-dated global fit to SMEFT coefficients including some NLO corrections in the SMEFT theory.

Authors: Dr HOMILLER, Samuel (Harvard); DAWSON, Sally (BNL); LANE, Samuel (University of Kansas)

Presenter: Dr HOMILLER, Samuel (Harvard)

Contribution ID: 57

Type: Yukawa Session

Correlating $h \rightarrow \mu + \mu^-$ to the Anomalous Magnetic Moment of the Muon via Leptoquarks

Recently, both ATLAS and CMS measured the decay $h \rightarrow \mu + \mu^-$, finding a signal strength with respect to the Standard Model (SM) expectation of 1.2 ± 0.6 and $1.19^{+0.41+0.17}_{-0.39-0.16}$, respectively. This measurement is particularly interesting in the context of the existing hints for lepton flavor universality violation (LFUV), since their new physics explanations could be tested in this decay mode. Especially the anomalous magnetic moment of the muon (a_μ), where a 3.7σ deviation from the SM theory prediction was observed, is promising since like $h \rightarrow \mu + \mu^-$ it is a chirality changing transition. Leptoquarks are prime candidates to explain the hints for LFUV, in particular regarding a_μ , as they can generate an m_t/m_μ enhanced contribution. In this letter we calculate and examine the correlations between $h \rightarrow \mu + \mu^-$ and a_μ by studying three distinct scenarios. We find that in two of them effects of several percent are predicted, which could be tested by future precision measurements. The third scenario even displays an enhancement of $\text{Br}[h \rightarrow \mu + \mu^-]$ by more than 50% if one aims at an explanation of a_μ at the 2σ level. Hence, the new ATLAS and CMS measurements already provide important constraints on the parameter space of the model.

Author: CRIVELLIN, Andreas (Universitaet Zuerich (CH))

Session Classification: Parallel

Contribution ID: 58

Type: EFT Session

Controlling uncertainties of the IAM dispersive unitary extension of EFTs

Effective Field Theories (EFTs) constructed, in the spirit of Chiral Perturbation Theory (ChPT), as derivative expansions in powers of momentum, are a controllable approximation to strong dynamics as long as the energy of the interacting particles remains small. However, deviations quickly build up due to the energy-polynomial expansion not respecting unitarity. This limits their predictive power towards new physics at a higher scale if small separations from the Standard Model are found at the LHC or elsewhere. Unitarized chiral perturbation theory techniques have been devised to extend the reach of the EFT to regimes where partial waves are saturating unitarity, but their uncertainties have hitherto not really been addressed: they are often successful in describing hadron data a posteriori, but their predictive power in the face of new physics has not been well delimited. Here we take one of the best known of them, the Inverse Amplitude Method (IAM), and we attempt to quantify the systematic uncertainties introduced by the method. We compare its hadron ChPT and its electroweak sector Higgs EFT applications. We find that the uncertainty of the IAM at the mass of the first resonance encountered in a partial-wave is of the same order of the starting uncertainty of the EFT at threshold energies, so that its unitarized extension should a priori expected to be reasonably successful provided a check for so-called CDD poles (zeroes of the partial wave amplitude) is carried out and, if they appear near the resonance region, the IAM is adequately modified to take them into account.

Authors: SALAS-BERNÁRDEZ, Alexandre (Universidad Complutense de Madrid); LLANES-ESTRADA, Felipe J.; OLLER, José Antonio (Universidad de Murcia)

Presenter: SALAS-BERNÁRDEZ, Alexandre (Universidad Complutense de Madrid)

Contribution ID: 61

Type: **EFT Session**

JHU generator framework: new features for Higgs boson studies

The JHU generator framework includes an event generator of anomalous HVV and Hff interactions of the Higgs boson in production and decay and a MELA library for matrix element analysis. This framework allows constraints on dimension-six operators of an effective field theory from a joint analysis of on-shell and off-shell production of the Higgs boson and of triple and quartic gauge boson interactions. Gluon fusion, vector boson fusion, and associated production with a vector boson are considered. Potential contributions from new states are included. Associated production with one or two top quarks and gluon fusion process allow access to the CP structure of Yukawa interactions. Practical applications to the EFT analysis of the current and future LHC datasets are discussed.

Authors: GRITSAN, Andrei (Johns Hopkins University (US)); SARICA, Ulascan (Univ. of California Santa Barbara (US)); XIAO, Meng (ZJU - Zhejiang University (CN)); ROSKES, Heshy (Johns Hopkins University (US)); SCHULZE, Markus Christian (Humboldt-Universität zu Berlin); ZHOU, Yaofu (J)

Contribution ID: 63

Type: **Precision Session**

Combined resummation for Higgs transverse momentum distribution

We present new phenomenological studies of the impact of a recently suggested formalism that simultaneously resums logarithmic contributions that are enhanced at small p_T and large x . This formalism relies on the combination of a so-called threshold-improved transverse momentum and threshold resummation which allows for a systematic improvement of the transverse momentum resummation that is valid in the entire range of p_T . As a phenomenological application, we consider the Higgs boson production at LHC where we show that threshold-improved transverse momentum resummation leads to faster perturbative convergence at small- p_T while the inclusion of threshold resummation improves the agreement with fixed-order calculations.

Author: RABEMANANJARA, Tanjona Radonirina (INFN - National Institute for Nuclear Physics)

Presenter: RABEMANANJARA, Tanjona Radonirina (INFN - National Institute for Nuclear Physics)

Session Classification: Parallel

Contribution ID: 64

Type: **EFT Session**

Constraining SMEFT operators with associated $h\gamma$ production in Weak Boson Fusion

As the search for physics beyond the Standard Model (BSM) continues, the Standard Model Effective Field Theory (SMEFT) has become a useful tool to constrain deviations from the SM in a model-independent way. In this talk we will consider the associated production of a Higgs boson and a photon in weak boson fusion (WBF), with the Higgs boson decaying to a pair of bottom quarks. I will present a cut-based analysis and multivariate techniques to determine the sensitivity of this process to the bottom-Yukawa coupling in the SM and to possible CP-violation mediated by dimension-6 operators in the SMEFT.

Author: GREGG, Parisa

Co-authors: BIEKOETTER, Anke (IPPP Durham); SCHOENHERR, Marek (University of Durham); KRAUSS, Frank Martin (University of Durham (GB))

Presenter: GREGG, Parisa

Contribution ID: 65

Type: **Precision Session**

Bottom quark mass effects in associated WH production with the $H \rightarrow b\bar{b}$ decay through NNLO QCD

We present a computation of next-to-next-to-leading-order (NNLO) QCD corrections to the production of a Higgs boson in association with a W boson at the LHC followed by the decay of the Higgs boson to a $b\bar{b}$ pair. At variance with previous NNLO QCD studies of the same process, we treat b quarks as massive. An important advantage of working with massive b quarks is that it makes the use of flavor jet algorithms unnecessary and allows us to employ conventional jet algorithms to define b jets. We compare NNLO QCD descriptions of the associated $WH(b\bar{b})$ production with massive and massless b quarks and also contrast them with the results provided by parton showers. We find $O(5\%)$ differences in fiducial cross sections computed with massless and massive b quarks. We also observe that much larger differences between massless and massive results, as well as between fixed-order and parton-shower results, can arise in selected kinematic distributions.

Author: BEHRING, Arnd (Karlsruhe Institute of Technology (KIT))

Co-authors: BIZON, Wojciech Jozef; CAOLA, Fabrizio (University of Oxford); MELNIKOV, Kirill (Karlsruhe Institute of Technology (KIT)); RONTSCH, Raoul Horst (CERN)

Presenter: BEHRING, Arnd (Karlsruhe Institute of Technology (KIT))

Session Classification: Parallel

Contribution ID: 66

Type: **Precision Session**

Electroweak Couplings of the Higgs Boson at a Multi-TeV Muon Collider

We estimate the expected precision at a multi-TeV muon collider for measuring the Higgs boson couplings with electroweak gauge bosons, HVV and $HHVV$ ($V = W^\pm, Z$), as well as the trilinear Higgs self-coupling HHH . At very high energies both single and double Higgs productions rely on the vector-boson fusion (VBF) topology. The outgoing remnant particles have a strong tendency to stay in the very forward region, leading to the configuration of the “inclusive process” and making it difficult to isolate ZZ fusion events from the WW fusion. In the single Higgs channel, we perform a maximum likelihood analysis on HWW and HZZ couplings using two categories: the inclusive Higgs production and the 1-muon exclusive signal. In the double Higgs channel, we consider the inclusive production and study the interplay of the trilinear HHH and the quartic $VVHH$ couplings, by utilizing kinematic information in the invariant mass spectrum.

Authors: WANG, Xing (University of Pittsburgh); HAN, Tao (University of Pittsburgh); LIU, Da (UC, Davis); LOW, Ian

Presenter: WANG, Xing (University of Pittsburgh)

Session Classification: Parallel

Contribution ID: **80**

Type: **Precision Session**

Fiducial and differential Higgs cross sections (except for Higgs transverse momentum)

Session Classification: Parallel

Contribution ID: **81**

Type: **Precision Session**

[ATLAS+CMS] Differential Higgs cross section as a function of p_T (15'+5')

Tuesday, October 27, 2020 12:30 PM (20 minutes)

Presenter: FONTANESI, Elisa (Universita e INFN, Bologna (IT))

Session Classification: Parallel

Contribution ID: 82

Type: **Precision Session**

Fixed Order Predictions for Higgs Boson Production at Large Transverse Momentum (15'+5')

Tuesday, October 27, 2020 12:50 PM (20 minutes)

Author: LINDERT, Jonas (University of Sussex)

Presenter: LINDERT, Jonas (University of Sussex)

Session Classification: Parallel

Contribution ID: 83

Type: **Precision Session**

Event Generation for Higgs Boson Production at Large Transverse Momentum (15'+5')

Tuesday, October 27, 2020 1:10 PM (20 minutes)

Presenter: VRYONIDOU, Eleni

Session Classification: Parallel

Contribution ID: 84

Type: **Precision Session**

Higgs production (combination and selected per-channel results - VBF $H \rightarrow WW$, $VHbb$ particularly interesting. No STXS)

Session Classification: Parallel

Contribution ID: 85

Type: **Precision Session**

Bottom quark mass effects in associated Higgs production at NNLO

Presenter: BEHRING, Arnd (Karlsruhe Institute of Technology (KIT))

Session Classification: Parallel

Contribution ID: 86

Type: **Precision Session**

Monte-Carlo Uncertainties for Higgs Boson Production in Vector Boson Fusion

Session Classification: Parallel

Contribution ID: 87

Type: **Precision Session**

Jet Veto Cross Sections for Higgs Boson Production

Session Classification: Parallel

Contribution ID: **88**

Type: **Yukawa Session**

Overview Yukawa coupling (15'+5')

Tuesday, October 27, 2020 12:30 PM (20 minutes)

Presenter: BISHARA, Fady Adibsamy (DESY)

Session Classification: Parallel

Contribution ID: **89**

Type: **Yukawa Session**

Top Yukawa ($ttH/tH, H>bb, \gamma\gamma$) [ATLAS+CMS] (15'+5')

Thursday, October 29, 2020 12:30 PM (20 minutes)

EXP (ATLAS+CMS)

Presenter: CONNELLY, Ian Allan (University of Glasgow (GB))

Session Classification: Parallel

Contribution ID: 90

Type: **Yukawa Session**

Top Yukawa (ttH/tH multilepton, ttbar) [ATLAS+CMS] (15'+5')

Thursday, October 29, 2020 12:50 PM (20 minutes)

EXP (ATLAS+CMS)

Presenter: RAMON ALVAREZ, Clara (Universidad de Oviedo (ES))

Session Classification: Parallel

Contribution ID: 91

Type: **Yukawa Session**

Higgs prospects with LHCb and its upgrades (15'+5')

Tuesday, October 27, 2020 1:30 PM (20 minutes)

Presenter: ZULIANI, Davide (Universita e INFN, Padova (IT))

Session Classification: Parallel

Contribution ID: 92

Type: **Yukawa Session**

CP violation (15'+5')

Tuesday, October 27, 2020 2:20 PM (20 minutes)

Presenter: BROD, Joachim (University of Cincinnati)

Session Classification: Parallel

Contribution ID: 93

Type: **Yukawa Session**

Tau coupling ($H \rightarrow \tau\tau$, CP violation) [ATLAS+CMS] (15'+5')

Tuesday, October 27, 2020 2:40 PM (20 minutes)

EXP (ATLAS+CMS)

Presenter: LOELIGER, Andrew David (University of Wisconsin Madison (US))

Session Classification: Parallel

Contribution ID: 94

Type: **Yukawa Session**

H $\rightarrow\mu\mu$ and baryogenesis (15'+5')

Tuesday, October 27, 2020 3:00 PM (20 minutes)

Presenter: VIERNIK, Yehonatan (Weizmann)

Session Classification: Parallel

Contribution ID: 95

Type: **Yukawa Session**

H>μμ [ATLAS] (15')

Tuesday, October 27, 2020 3:20 PM (15 minutes)

EXP (ATLAS)

Presenter: MUSKINJA, Miha (Lawrence Berkeley National Lab. (US))

Session Classification: Parallel

Contribution ID: 96

Type: **Yukawa Session**

H>μμ [CMS] (15')

Tuesday, October 27, 2020 3:35 PM (15 minutes)

EXP (CMS)

Presenter: RIEGER, Jan Oliver (Hamburg University (DE))

Session Classification: Parallel

Contribution ID: 97

Type: **Precision Session**

[ATLAS+CMS] Higgs production (combination and selected per-channel measurements - VBF H->WW, VHbb particularly interesting. No STXS) (15'+5')

Tuesday, October 27, 2020 2:20 PM (20 minutes)

Presenter: BASSO, Matthew (University of Toronto (CA))

Session Classification: Parallel

Contribution ID: 98

Type: **Precision Session**

Bottom quark mass effects in associated Higgs production at NNLO (15'+5')

Tuesday, October 27, 2020 3:00 PM (20 minutes)

Presenter: BEHRING, Arnd (Karlsruhe Institute of Technology (KIT))

Session Classification: Parallel

Contribution ID: 99

Type: **Yukawa Session**

b Yukawa ($H \rightarrow b\bar{b}$) [ATLAS+CMS] (15'+5')

Tuesday, October 27, 2020 12:50 PM (20 minutes)

EXP (ATLAS+CMS)

Presenter: CAMACHO TORO, Reina Coromoto (Centre National de la Recherche Scientifique (FR))

Session Classification: Parallel

Contribution ID: 100

Type: **Precision Session**

Monte-Carlo Uncertainties for Higgs Boson Production in Vector Boson Fusion (15'+5')

Wednesday, October 28, 2020 1:10 PM (20 minutes)

Presenter: Dr KARLBERG, Alexander (University of Oxford)

Session Classification: Parallel

Contribution ID: **101**

Type: **Precision Session**

Jet Veto Cross Sections for Higgs Boson Production

Tuesday, October 27, 2020 3:20 PM (20 minutes)

Presenter: GANGAL, Shireen

Session Classification: Parallel

Contribution ID: **102**

Type: **Yukawa Session**

c Yukawa (H>cc) [ATLAS+CMS] (15'+5')

Tuesday, October 27, 2020 1:10 PM (20 minutes)

EXP (ATLAS+CMS)

Presenter: BURKLE, Bjorn (Brown University (US))

Session Classification: Parallel

Contribution ID: 103

Type: **Yukawa Session**

Strange-tagging in future colliders (15'+5')

Thursday, October 29, 2020 1:10 PM (20 minutes)

Presenter: SCHLAFFER, Matthias (University of Chicago)

Session Classification: Parallel

Contribution ID: 104

Type: **Yukawa Session**

Correlating $H \rightarrow \mu + \mu^-$ to the Anomalous Magnetic Moment of the Muon via Leptoquarks ($15' + 5'$)

Thursday, October 29, 2020 1:30 PM (20 minutes)

Presenter: CRIVELLIN, Andreas (Universitaet Zuerich (CH))

Session Classification: Parallel

Contribution ID: 105

Type: **Precision Session**

[ATLAS+CMS] Combined Higgs measurements STXS and kappas, including kappa interpretations (15'+5')

Wednesday, October 28, 2020 12:30 PM (20 minutes)

Presenter: MUNGO, Davide Pietro (Università degli Studi e INFN Milano (IT))

Session Classification: Parallel

Contribution ID: 106

Type: **Precision Session**

**[ATLAS+CMS] Higgs-vector boson CP studies, incl.
H→4l anomalous couplings and H→tautau VBF CP
(15'+5')**

Wednesday, October 28, 2020 12:50 PM (20 minutes)

Presenter: KIM, Doyeong (KANSAS STATE UNIVERSITY)

Session Classification: Parallel

Contribution ID: **107**

Type: **Precision Session**

[ATLAS+CMS] Higgs mass measurements (15'+5')

Wednesday, October 28, 2020 1:30 PM (20 minutes)

Presenter: ERRICO, Filippo (University of Florida (US))

Session Classification: Parallel

Contribution ID: **108**

Type: **Precision Session**

Projections for Higgs measurements at the HL-LHC (15'+5')

Wednesday, October 28, 2020 2:20 PM (20 minutes)

Presenter: DUTTA, Irene (California Institute of Technology (US))

Session Classification: Parallel

Contribution ID: **109**

Type: **Precision Session**

Parton Distribution Functions for Higgs Physics at the HL-LHC (15'+5')

Wednesday, October 28, 2020 2:40 PM (20 minutes)

Presenter: Dr HARLAND-LANG, Lucian (University of Oxford)

Session Classification: Parallel

Contribution ID: 110

Type: **Precision Session**

Electroweak Couplings of the Higgs Boson at a Multi-TeV Muon Collider (15'+5')

Wednesday, October 28, 2020 3:00 PM (20 minutes)

Presenter: WANG, Xing (UC San Diego)

Session Classification: Parallel

Contribution ID: 111

Type: **Precision Session**

Precision measurements of Higgs boson properties at future ep-em colliders: What are the challenges? (15'+5')

Wednesday, October 28, 2020 3:20 PM (20 minutes)

Presenter: DURIEUX, Gauthier (CERN)

Session Classification: Parallel

Contribution ID: 112

Type: **not specified**

Combined resummation for Higgs transverse momentum distribution (15'+5')

Tuesday, October 27, 2020 1:30 PM (20 minutes)

Author: RABEMANANJARA, Tanjona Radonirina (CERN)

Presenters: RABEMANANJARA, Tanjona Radonirina (INFN - National Institute for Nuclear Physics); RABEMANANJARA, Tanjona Radonirina (CERN)

Session Classification: Parallel

Contribution ID: 113

Type: **Precision Session**

[ATLAS+CMS] Fiducial and differential Higgs cross sections (except for Higgs transverse momentum) (15'+5')

Tuesday, October 27, 2020 2:40 PM (20 minutes)

Author: FASSOULIOTIS, Dimitris (National and Kapodistrian University of Athens (GR))

Presenter: FASSOULIOTIS, Dimitris (National and Kapodistrian University of Athens (GR))

Session Classification: Parallel

Contribution ID: 114

Type: **HH Session**

Searches for new resonances decaying to HH at CMS (15'+5')

Tuesday, October 27, 2020 12:30 PM (20 minutes)

Presenter: PANWAR, Lata (Indian Institute of science (IN))

Session Classification: Parallel

Contribution ID: 115

Type: **HH Session**

Searches for new resonances decaying to HH at ATLAS (15'+5')

Tuesday, October 27, 2020 12:50 PM (20 minutes)

Presenter: ZHANG, Bowen (Nanjing University (CN))

Session Classification: Parallel

Contribution ID: 116

Type: **HH Session**

WBF/GF HH resonances from a phenomenological perspective (15'+5')

Tuesday, October 27, 2020 1:10 PM (20 minutes)

Presenter: Dr BARMAN, Rahool Kumar (Indian Association for the Cultivation of Sciences, Kolkata, India)

Session Classification: Parallel

Contribution ID: 117

Type: **not specified**

BSM scenarios with HH resonances (15'+5')

Tuesday, October 27, 2020 1:30 PM (20 minutes)

Presenters: MUHLLEITNER, Milada (KIT - Karlsruhe Institute of Technology (DE)); MUHLLEITNER, Milada

Session Classification: Parallel

Contribution ID: **118**

Type: **HH Session**

Searches for non-resonant Higgs pair-production at ATLAS (15'+5')

Tuesday, October 27, 2020 2:20 PM (20 minutes)

Presenter: VEATCH, Jason Robert (Georg August Universitaet Goettingen (DE))

Session Classification: Parallel

Contribution ID: 119

Type: **HH Session**

Searches for non-resonant Higgs pair-production at CMS (15'+5')

Tuesday, October 27, 2020 2:40 PM (20 minutes)

Presenter: MUKHERJEE, Soumya (Tata Inst. of Fundamental Research (IN))

Session Classification: Parallel

Contribution ID: 120

Type: **HH Session**

SM DiHiggs precision shapes (15'+5')

Tuesday, October 27, 2020 3:00 PM (20 minutes)

Presenters: GLAUS, Seraina (E); GLAUS, Seraina (KIT)

Session Classification: Parallel

Contribution ID: 121

Type: **HH Session**

Non-resonant/EFT Higgs pair phenomenology (15'+5')

Tuesday, October 27, 2020 3:20 PM (20 minutes)

Presenter: ZURITA, José Francisco (KIT)

Session Classification: Parallel

Contribution ID: 122

Type: **HH Session**

Measurement prospects for Higgs pair-production at the HL-LHC (15'+5')

Thursday, October 29, 2020 12:30 PM (20 minutes)

Presenter: NIKOLOPOULOS, Konstantinos (University of Birmingham (GB))

Session Classification: Parallel

Contribution ID: 123

Type: **HH Session**

Prospects for measuring the Higgs self-coupling at future colliders (15'+5')

Thursday, October 29, 2020 12:50 PM (20 minutes)

Presenter: SELVAGGI, Michele (CERN)

Session Classification: Parallel

Contribution ID: 124

Type: **HH Session**

HL-LHC and Future Collider prospects for HH from a theoretical perspective: extrapolations and other channels (15'+5')

Thursday, October 29, 2020 1:10 PM (20 minutes)

Presenters: BANERJEE, Shankha (CERN); Dr BANERJEE, Shankha (Institute for Particle Physics Phenomenology, Durham University, UK)

Session Classification: Parallel

Contribution ID: 125

Type: **HH Session**

Triple Higgs and quartic interactions at future colliders (incl. muon colliders) (15'+5')

Thursday, October 29, 2020 1:30 PM (20 minutes)

Presenter: MELE, Barbara (Sapienza Universita e INFN, Roma I (IT))

Session Classification: Parallel

Contribution ID: 126

Type: **EFT Session**

Higgs EFT measurements in ATLAS (25' + 5')

Wednesday, October 28, 2020 12:30 PM (30 minutes)

Author: MOSER, Brian (Nikhef National institute for subatomic physics (NL))

Presenter: MOSER, Brian (Nikhef National institute for subatomic physics (NL))

Session Classification: Parallel

Contribution ID: 127

Type: **EFT Session**

Higgs EFT measurements in CMS

Session Classification: Parallel

Contribution ID: 128

Type: **EFT Session**

geoSMEFT and applications (15' + 5')

Wednesday, October 28, 2020 1:30 PM (20 minutes)

Author: TROTT, Michael Robert (University of Copenhagen (DK))

Presenter: TROTT, Michael Robert (University of Copenhagen (DK))

Session Classification: Parallel

Contribution ID: **129**

Type: **not specified**

Discussion (10')

Wednesday, October 28, 2020 1:50 PM (10 minutes)

Session Classification: Parallel

Contribution ID: 130

Type: **EFT Session**

Putting SMEFT Fits to Work (15' + 5')

Wednesday, October 28, 2020 3:00 PM (20 minutes)

Author: HOMILLER, Samuel (Harvard)

Presenter: HOMILLER, Samuel (Harvard)

Session Classification: Parallel

Contribution ID: 131

Type: **EFT Session**

JHU generator framework: new features for Higgs boson studies (15' + 5')

Wednesday, October 28, 2020 3:20 PM (20 minutes)

Author: SARICA, Ulascan (Univ. of California Santa Barbara (US))

Co-author: GRITSAN, Andrei (Johns Hopkins University (US))

Presenter: SARICA, Ulascan (Univ. of California Santa Barbara (US))

Session Classification: Parallel

Contribution ID: 132

Type: **EFT Session**

Constraining SMEFT operators with associated $h\bar{\chi}\chi$ production in Weak Boson Fusion

Author: GREGG, Parisa

Presenter: GREGG, Parisa

Session Classification: Parallel

Contribution ID: 133

Type: **EFT Session**

Controlling uncertainties of the IAM dispersive unitary extension of EFTs (15' + 5')

Wednesday, October 28, 2020 2:20 PM (20 minutes)

Author: SALAS-BERNÁRDEZ, Alexandre (Universidad Complutense de Madrid)

Presenter: SALAS-BERNÁRDEZ, Alexandre (Universidad Complutense de Madrid)

Session Classification: Parallel

Contribution ID: 134

Type: **EFT Session**

Discussion

Session Classification: Parallel

Contribution ID: 135

Type: **BSM Session**

Interference effects in heavy Higgs searches (15' + 7')

Wednesday, October 28, 2020 1:14 PM (22 minutes)

Presenter: LIU, Zhen (U of Maryland)

Session Classification: Parallel

Contribution ID: 136

Type: **BSM Session**

Heavy Higgs in neutral naturalness models (Cancelled)

Wednesday, October 28, 2020 1:36 PM (22 minutes)

Session Classification: Parallel

Contribution ID: 137

Type: **BSM Session**

Additional neutral heavy Higgs in fermion decays (mumu, tautau, bb, ttbar) at ATLAS and CMS (15' + 7')

Wednesday, October 28, 2020 12:30 PM (22 minutes)

Presenter: BARAK, Liron (Tel Aviv University)

Session Classification: Parallel

Contribution ID: 138

Type: **BSM Session**

Additional neutral heavy Higgs in diboson decays (WW, ZZ, $\gamma\gamma$) and $A \rightarrow ZH$ at ATLAS and CMS (15' + 7')

Wednesday, October 28, 2020 12:52 PM (22 minutes)

Presenter: DUDA, Dominik (Max-Planck-Institut für Physik (DE))

Session Classification: Parallel

Contribution ID: 139

Type: **BSM Session**

Composite Higgs models (15' + 7')

Wednesday, October 28, 2020 3:04 PM (22 minutes)

Presenter: LIU, Da (UC, Davis)

Session Classification: Parallel

Contribution ID: 140

Type: **BSM Session**

Additional neutral light Higgs at ATLAS and CMS (15' + 7')

Wednesday, October 28, 2020 2:20 PM (22 minutes)

Presenter: PEREZ ADAN, Danyer (Deutsches Elektronen-Synchrotron (DE))

Session Classification: Parallel

Contribution ID: 141

Type: **BSM Session**

Charged Higgs at ATLAS and CMS (15' + 7')

Wednesday, October 28, 2020 2:42 PM (22 minutes)

Presenter: Dr ATTIKIS, Alexandros (University of Cyprus (CY))

Session Classification: Parallel

Contribution ID: 142

Type: **BSM Session**

Higgs exotic decays (15' + 7')

Wednesday, October 28, 2020 3:26 PM (22 minutes)

Presenter: SHUVE, Brian (Harvey Mudd College)

Session Classification: Parallel

Contribution ID: 143

Type: **BSM Session**

Xenon1T excess (15' + 7')

Thursday, October 29, 2020 12:30 PM (22 minutes)

Presenters: ROCCHETTI, Arianna; ROCCHETTI, Arianna (University of Freiburg)

Session Classification: Parallel

Contribution ID: 144

Type: **BSM Session**

DM produced in association with H at ATLAS and CMS (15' + 7')

Thursday, October 29, 2020 12:52 PM (22 minutes)

Presenter: MEEHAN, Samuel Ross (CERN)

Session Classification: Parallel

Contribution ID: 145

Type: **BSM Session**

Higgs and flavor (15' + 7')

Thursday, October 29, 2020 1:36 PM (22 minutes)

Presenter: HOMILLER, Samuel (Harvard)

Session Classification: Parallel

Contribution ID: 146

Type: **BSM Session**

LFV, rare decays and invisible Higgs decays at ATLAS and CMS (15' + 7')

Thursday, October 29, 2020 1:14 PM (22 minutes)

Presenter: SIDDIREDDY, Prasanna Kumar (University of Notre Dame (US))

Session Classification: Parallel

Contribution ID: 147

Type: **EFT Session**

Higgs EFT results from CMS (25' + 5')

Wednesday, October 28, 2020 1:00 PM (30 minutes)

Author: SHARMA, Ashish (Indian Institute of Technology Madras (IN))

Presenter: SHARMA, Ashish (Indian Institute of Technology Madras (IN))

Session Classification: Parallel

Contribution ID: 148

Type: **EFT Session**

Constraining SMEFT operators with associated $h\bar{h}$ production in Weak Boson Fusion (15' + 5')

Wednesday, October 28, 2020 2:40 PM (20 minutes)

Author: GREGG, Parisa

Presenter: GREGG, Parisa

Session Classification: Parallel

Contribution ID: **149**

Type: **EFT Session**

Discussion (10')

Wednesday, October 28, 2020 3:40 PM (10 minutes)

Session Classification: Parallel

Contribution ID: **150**

Type: **not specified**

H>mumu Discussion

Tuesday, October 27, 2020 3:50 PM (10 minutes)

Session Classification: Parallel

Contribution ID: **151**

Type: **not specified**

Public event

Contribution ID: 152

Type: **not specified**

Measurement of the Higgs boson mass in the $H \rightarrow ZZ^* \rightarrow 4l$ decay channel in 13 TeV pp collisions using the ATLAS detector at the LHC

Tuesday, October 27, 2020 4:10 PM (5 minutes)

Presenter: CIUNGU, Bianca Monica (University of Toronto (CA))

Session Classification: YSF

Contribution ID: 153

Type: **not specified**

Observation of the H \rightarrow WW* production by Vector Boson Fusion in 13 TeV pp collisions with the ATLAS detector at the LHC

Tuesday, October 27, 2020 4:15 PM (5 minutes)

Presenter: JAEGER, Benjamin Paul (Simon Fraser University (CA))

Session Classification: YSF

Contribution ID: 154

Type: **not specified**

Search for a heavy Higgs boson decaying into a Z boson and another heavy Higgs boson in the $llbb$ and $llWW$ final state in 13 TeV pp collision with ATLAS detector

Tuesday, October 27, 2020 4:20 PM (5 minutes)

Presenters: CHAN, Wai Yuen (University of Liverpool (GB)); CHAN, Wai Yuen (University of Liverpool)

Session Classification: YSF

Contribution ID: 155

Type: **not specified**

Measurement of Higgs boson production in the decay channel with a pair of tau leptons

Thursday, October 29, 2020 4:00 PM (5 minutes)

Presenter: HASSANSHAHI, Mohammadhassan (Imperial College (GB))

Session Classification: YSF

Contribution ID: 156

Type: **not specified**

Search for the Higgs boson in the associated vector boson production mode where the vector boson decays leptonically and the Higgs boson decays to a pair of bottom quarks

Thursday, October 29, 2020 4:05 PM (5 minutes)

Presenter: GEDIA, Krunal Bipin (ETH Zurich (CH))

Session Classification: YSF

Contribution ID: 157

Type: **not specified**

MC template-based search for Higgs boson decays into a pair of muons targeting the VBF production channel

Thursday, October 29, 2020 4:10 PM (5 minutes)

Presenter: KONDRATYEV, Dmitry (Purdue University (US))

Session Classification: YSF

Contribution ID: 158

Type: **not specified**

Data-driven analyses in the search for the Higgs decay to two muons

Thursday, October 29, 2020 4:15 PM (5 minutes)

Presenter: ZUO, Xunwu (University of Florida (US))

Session Classification: YSF

Contribution ID: **159**

Type: **not specified**

Tea/discussion break

Contribution ID: **160**

Type: **not specified**

tea/discussion break

Contribution ID: 162

Type: **not specified**

Search for the Higgs boson decaying to a pair of muons in pp collisions at 13 TeV with the ATLAS detector

Tuesday, October 27, 2020 4:25 PM (5 minutes)

Presenter: CHAN, Jay (University of Wisconsin Madison (US))

Session Classification: YSF

Contribution ID: **163**

Type: **not specified**

Discussion

Tuesday, October 27, 2020 3:40 PM (20 minutes)

Session Classification: Parallel

Contribution ID: **164**

Type: **not specified**

Discussion

Tuesday, October 27, 2020 3:40 PM (20 minutes)

Session Classification: Parallel

Contribution ID: 165

Type: **not specified**

The Higgs boson and more

Wednesday, October 28, 2020 6:00 PM (40 minutes)

Presenters: MAIANI, Luciano (Unknown); MAIANI, Luciano (Sapienza Universita e INFN, Roma I (IT))

Session Classification: Public Event