

**XXX Cracow EPIPHANY  
Conference on Precision  
Physics at High Energy  
Colliders**

**Report of Contributions**

Contribution ID: 1

Type: **not specified**

# Towards a NLO parton shower: Gauge choice

*Monday 8 January 2024 09:15 (30 minutes)*

**Presenter:** NAGY, Zoltan

**Session Classification:** QCD/MC

Contribution ID: 2

Type: **not specified**

# High precision prediction for multi-scale processes at the LHC

*Monday 8 January 2024 10:15 (30 minutes)*

**Presenter:** PONCELET, Rene (IFJ PAN Krakow)

**Session Classification:** QCD/MC

Contribution ID: 3

Type: **not specified**

# Precision Physics at High Energy Colliders and Low Energy Connections

*Monday 8 January 2024 09:45 (30 minutes)*

**Presenter:** GLUZA, Janusz (U. Silesia)

**Session Classification:** QCD/MC

Contribution ID: 4

Type: **not specified**

## **Precision measurements of the Standard Model with the ATLAS Experiment**

*Monday 8 January 2024 11:15 (30 minutes)*

**Presenter:** YU, Yi (University of Science and Technology of China (CN))

**Session Classification:** SM

Contribution ID: 5

Type: **not specified**

## SM electroweak highlights from CMS

*Monday 8 January 2024 11:45 (30 minutes)*

**Presenter:** SZLEPER, Michal (National Centre for Nuclear Research (PL))

**Session Classification:** SM

Contribution ID: 6

Type: **not specified**

## Overview of LHCb results

*Monday 8 January 2024 12:15 (30 minutes)*

**Presenter:** OLDEMAN, Rolf (Universita e INFN, Cagliari (IT))

**Session Classification:** SM

Contribution ID: 7

Type: **not specified**

## Recent results from Belle and Belle II

*Monday 8 January 2024 12:45 (30 minutes)*

**Presenter:** GAZ, Alessandro

**Session Classification:** SM



Contribution ID: 8

Type: **not specified**

## **Spin effects in tau-lepton pair induced by anomalous magnetic and electric dipole moments**

*Monday 8 January 2024 14:45 (30 minutes)*

**Presenter:** KORCHIN, Alexander

**Session Classification:** Heavy Flavour

Contribution ID: 9

Type: **not specified**

## Monte Carlos for tau lepton Standard Model and New Physics signatures

*Monday 8 January 2024 15:15 (30 minutes)*

**Presenter:** BANERJEE, Swagato (University of Louisville (US))

**Session Classification:** Heavy Flavour

Contribution ID: **10**

Type: **not specified**

## **Tau physics at Belle and Belle II**

*Monday 8 January 2024 15:45 (30 minutes)*

**Presenter:** LAUTENBACH, Klemens

**Session Classification:** Heavy Flavour

Contribution ID: 11

Type: **not specified**

## Back-to-back dijets in DIS at small $x$

*Monday 8 January 2024 16:45 (30 minutes)*

**Presenter:** STEBEL, Tomasz (Institute of Theoretical Physics Jagiellonian University)

**Session Classification:** QCD/MC

Contribution ID: 12

Type: **not specified**

## **On hybrid factorization at the NLO from collinear amplitudes**

*Monday 8 January 2024 17:15 (30 minutes)*

**Presenter:** MOTYKA, Leszek

**Session Classification:** QCD/MC

Contribution ID: 13

Type: **not specified**

## **Progress in implementing the kinematical constraint into the small-x JIMWLK evolution equation**

*Monday 8 January 2024 17:45 (30 minutes)*

**Presenter:** KORCYL, Piotr (Jagiellonian University)

**Session Classification:** QCD/MC

Contribution ID: 14

Type: **not specified**

## Higgs boson measurements at CMS

*Tuesday 9 January 2024 09:00 (30 minutes)*

**Presenter:** BLUJ, Michal (National Centre for Nuclear Research (PL))

**Session Classification:** Higgs/Future

Contribution ID: 15

Type: **not specified**

## **Precision measurements of Higgs boson properties with the ATLAS experiment**

*Tuesday 9 January 2024 09:30 (30 minutes)*

**Presenter:** JAVURKOVA, Martina (University of Massachusetts (US))

**Session Classification:** Higgs/Future



Contribution ID: 16

Type: **not specified**

## **Search for exotic decays of the Higgs boson into long-lived particles with jet pairs in the final state at future colliders**

*Tuesday 9 January 2024 10:00 (30 minutes)*

**Presenter:** KUCHARCZYK, Marcin (Polish Academy of Sciences (PL))

**Session Classification:** Higgs/Future

Contribution ID: 17

Type: **not specified**

## **Correctly counting the number of light neutrino types with photons**

*Tuesday 9 January 2024 10:30 (30 minutes)*

**Presenter:** WILSON, Graham (The University of Kansas (US))

**Session Classification:** Higgs/Future

Contribution ID: **18**

Type: **not specified**

## **Precise measurement of light-quark electroweak couplings at future colliders**

*Tuesday 9 January 2024 11:30 (30 minutes)*

**Presenter:** MEKALA, Krzysztof

**Session Classification:** Future

Contribution ID: **19**

Type: **not specified**

# **Gamma Factory and precision physics at LHC**

*Tuesday 9 January 2024 12:00 (30 minutes)*

**Presenter:** PLACZEK, Wiesiek (Jagiellonian University (PL))

**Session Classification:** Future

Contribution ID: 20

Type: **not specified**

## Generators: Back to the Future

*Tuesday 9 January 2024 12:30 (30 minutes)*

**Presenter:** SIODMOK, Andrzej Konrad (Jagiellonian University (PL))

**Session Classification:** Future

Contribution ID: 21

Type: **not specified**

## **Prospects for single- and di-Higgs measurements at the HL-LHC (ATLAS and CMS)**

*Tuesday 9 January 2024 13:00 (30 minutes)*

**Presenter:** ZHANG, Lei (Nanjing University (CN))

**Session Classification:** Future

Contribution ID: 22

Type: **not specified**

## The ePIC experiment physics program overview

*Tuesday 9 January 2024 15:00 (30 minutes)*

**Presenter:** PRZYBYCIEN, Mariusz (AGH University of Krakow (PL))

**Session Classification:** Heavy Ions

Contribution ID: 23

Type: **not specified**

## Exploring the equilibration time of the QGP with jet quenching

*Tuesday 9 January 2024 15:30 (30 minutes)*

**Presenter:** ADHYA, Souvik Priyam (Institute of Nuclear Physics, Polish Academy of Sciences)

**Session Classification:** Heavy Ions



Contribution ID: 24

Type: **not specified**

## Performance of the ATLAS L1 TRT trigger in heavy-ion collisions at the LHC

*Thursday 11 January 2024 12:00 (15 minutes)*

**Presenter:** RYBCZYNSKI, Pawel (AGH University of Krakow (PL))

**Session Classification:** Young

Contribution ID: 25

Type: **not specified**

## QCD evolution equations and splitting functions

*Wednesday 10 January 2024 09:00 (30 minutes)*

**Presenter:** MOCH, Sven-Olaf

**Session Classification:** QCD/MC

Contribution ID: 26

Type: **not specified**

## **Parton Distribution Functions and Their Impact on Precision of the Current Theory Calculations**

*Wednesday 10 January 2024 09:30 (30 minutes)*

**Presenter:** UBIALI, Maria (University of Cambridge (GB))

**Session Classification:** QCD/MC

Contribution ID: 27

Type: **not specified**

## Top quark in POWHEG Generator

*Wednesday 10 January 2024 10:00 (30 minutes)*

**Presenter:** JEZO, Tomas (WWU ITP)

**Session Classification:** QCD/MC

Contribution ID: 28

Type: **not specified**

## Recent developments in the GENEVA event generator

*Wednesday 10 January 2024 11:00 (30 minutes)*

The GENEVA method provides a means to combine resummed and fixed order calculations at state-of-the-art accuracy with a parton shower program. GENEVA NNLO+PS generators have now been constructed for a range of colour-singlet production processes and using a range of different resolution variables. I will review the GENEVA framework and then describe several recent advancements, such as the use of jet veto resummation at NNLL' accuracy and the ongoing extension to processes including jets in the final state.

**Presenter:** LIM, Matthew (University of Sussex)

**Session Classification:** QCD/MC

Contribution ID: 29

Type: **not specified**

## YFS for Future Lepton Colliders

*Wednesday 10 January 2024 11:30 (30 minutes)*

**Presenter:** PRICE, Alan

**Session Classification:** QCD/MC

Contribution ID: 30

Type: **not specified**

# The KrkNLO method for parton shower matching

*Wednesday 10 January 2024 12:00 (30 minutes)*

**Presenter:** WHITEHEAD, James

**Session Classification:** QCD/MC

Contribution ID: 31

Type: **not specified**

## **Recent developments in Transverse Momentum Dependent parton densities and associated parton showers**

*Wednesday 10 January 2024 12:30 (30 minutes)*

**Presenter:** JUNG, Hanes (DESY)

**Session Classification:** QCD/MC



Contribution ID: 32

Type: **not specified**

# Methodology of precision Monte Carlo development

*Wednesday 10 January 2024 14:30 (40 minutes)*

**Presenter:** WAS, Zbigniew Andrzej (Polish Academy of Sciences (PL))

**Session Classification:** Staszek

Contribution ID: 33

Type: **not specified**

## **Staszeck Jadach: Precision measurements at LEP and FCC-ee**

*Wednesday 10 January 2024 15:10 (40 minutes)*

**Presenter:** BLONDEL, Alain (Universite de Geneve (CH))

**Session Classification:** Staszek

Contribution ID: 34

Type: **not specified**

## **Staszek Jadach: the first FCC-ee precision measurement with real data**

*Wednesday 10 January 2024 15:50 (40 minutes)*

**Presenter:** JANOT, Patrick (CERN)

**Session Classification:** Staszek

Contribution ID: 35

Type: **not specified**

# The discovery of the Standard Model: a subjective stroll

*Wednesday 10 January 2024 17:00 (40 minutes)*

**Presenter:** HEUER, Rolf (Deutsches Elektronen-Synchrotron (DE))

**Session Classification:** Staszek

Contribution ID: 36

Type: **not specified**

## **YFS Exponentiation - Gate to Precision Accelerator Physics Measurements**

*Wednesday 10 January 2024 17:40 (40 minutes)*

**Presenter:** WARD, Bennie

**Session Classification:** Staszek

Contribution ID: 37

Type: **not specified**

## **Anomalies and precisions : latest CMS B-physics highlights**

*Friday 12 January 2024 09:00 (30 minutes)*

**Presenter:** ALIBORDI, Muhammad (University of Warsaw)

**Session Classification:** Heavy Flavour

Contribution ID: 38

Type: **not specified**

## Measurements of the Charm mixing and CP violation parameter $\gamma_{CP}$ at LHCb

*Thursday 11 January 2024 16:15 (15 minutes)*

**Presenter:** ANELLI, Alessia (Universita & INFN, Milano-Bicocca (IT))

**Session Classification:** Young

Contribution ID: 39

Type: **not specified**

## Vcb and Vub measurements at Belle and Belle II

*Friday 12 January 2024 09:30 (30 minutes)*

**Presenter:** BAUER, Moritz (KIT - Karlsruhe Institute of Technology (DE))

**Session Classification:** Heavy Flavour



Contribution ID: 40

Type: **not specified**

## **Exclusive bremsstrahlung of one and two photons in pp collisions**

*Friday 12 January 2024 10:30 (30 minutes)*

**Presenter:** SZCZUREK, Antoni

**Session Classification:** QCD/MC

Contribution ID: 41

Type: **not specified**

## Computing multi-leg scattering amplitudes using light-cone actions

*Friday 12 January 2024 11:00 (30 minutes)*

**Presenter:** KOTKO, Piotr (AGH UST)

**Session Classification:** QCD/MC

Contribution ID: 42

Type: **not specified**

## **Wilson line-based action for gluodynamics at the classical and quantum level**

*Friday 12 January 2024 11:30 (30 minutes)*

**Presenter:** KAKKAD, Hiren

**Session Classification:** QCD/MC

Contribution ID: 43

Type: **not specified**

## **Production of charm and neutrinos in far-forward experiments at the LHC**

*Friday 12 January 2024 12:00 (30 minutes)*

**Presenter:** MACIULA, Rafal

**Session Classification:** QCD/MC

Contribution ID: 44

Type: **not specified**

## **Precise calculations for decays of Higgs bosons in extended Higgs sectors**

*Thursday 11 January 2024 09:00 (30 minutes)*

**Presenter:** SAKURAI, Kodai (Tohoku University)

**Session Classification:** BSM

Contribution ID: 45

Type: **not specified**

## Entanglement entropy and structure of proton

**Presenter:** KUTAK, Krzysztof (Instytut Fizyki Jadrowej Polskiej Akademii Nauk)

**Session Classification:** BSM

Contribution ID: 46

Type: **not specified**

## **Impact parameter dependence of dilepton production: Wigner function approach and the role of photon polarizations**

**Presenter:** SCHAEFER, Wolfgang

**Session Classification:** BSM

Contribution ID: 47

Type: **not specified**

## Constraining neutrino models predictions

*Thursday 11 January 2024 17:00 (15 minutes)*

**Presenter:** ZIEBA, Szymon

**Session Classification:** Young



Contribution ID: 48

Type: **not specified**

## **Environment for particle accelerator conditions data used by the CMS experiment at CERN**

*Thursday 11 January 2024 12:15 (15 minutes)*

**Presenter:** CHYCZYNSKI, Jan Krzysztof (AGH University of Krakow (PL))

**Session Classification:** Young

Contribution ID: 49

Type: **not specified**

## Level-1 Muon Trigger of the CMS experiment

*Thursday 11 January 2024 11:15 (15 minutes)*

**Presenter:** KOMUDA, Rafal (University of Warsaw (PL))

**Session Classification:** Young

Contribution ID: 50

Type: **not specified**

## CP violation in charm meson decays

*Thursday 11 January 2024 16:30 (15 minutes)*

**Presenter:** CHERNOV, Aleksei (Polish Academy of Sciences (PL))

**Session Classification:** Young

Contribution ID: 51

Type: **not specified**

## **Possibilities of light-by-light scattering measurement in FoCal detector**

*Thursday 11 January 2024 16:45 (15 minutes)*

**Presenter:** JUCHA, Paweł (Institute of Nuclear Physics Polish Academy of Sciences)

**Session Classification:** Young

Contribution ID: 52

Type: **not specified**

## Alignment of the ATLAS-ALFA detectors

*Thursday 11 January 2024 11:30 (15 minutes)*

**Presenter:** BASHIRI, Saleh (Polish Academy of Sciences (PL))

**Session Classification:** Young

Contribution ID: 53

Type: **not specified**

## Alignment of the ATLAS-AFP detectors

*Thursday 11 January 2024 11:45 (15 minutes)*

**Presenter:** ÖZTÜRK, Ferhat (IFJ PAN Cracow (PL))

**Session Classification:** Young

Contribution ID: 54

Type: **not specified**

# Novel approach to measure quark/gluon jets at the LHC

*Thursday 11 January 2024 14:00 (15 minutes)*

**Presenter:** BARON, Petr (Palacky University (CZ))

**Session Classification:** Young

Contribution ID: 55

Type: **not specified**

## **Markov Chain Monte Carlo Methods: An Alternative Approach for Nuclear PDF Determination**

*Thursday 11 January 2024 14:15 (15 minutes)*

**Presenter:** DERAKHSHANIAN, Nasim (IFJ PAN)

**Session Classification:** Young



Contribution ID: 56

Type: **not specified**

## How to find charged Higgs in ATLAS data. The MVA approach

*Thursday 11 January 2024 15:00 (15 minutes)*

**Presenter:** ZAK, Zuzanna Katarzyna (Polish Academy of Sciences (PL))

**Session Classification:** Young

Contribution ID: 57

Type: **not specified**

## NLO for hybrid kT-factorization

*Thursday 11 January 2024 14:30 (15 minutes)*

**Presenter:** ZIARKO, Grzegorz (Instytut fizyki jądrowej PAN w Krakowie)

**Session Classification:** Young

Contribution ID: 58

Type: **not specified**

## Probing Gluon Saturation in Photon+Jet Production in pp and pPb Collisions

*Thursday 11 January 2024 14:45 (15 minutes)*

**Presenter:** GANGULI, Ishita (AGH)

**Session Classification:** Young

Contribution ID: 59

Type: **not specified**

## **Monte Carlo studies of lepton flavor universality violating $B \rightarrow h\tau l$ decays at Belle and Belle2**

*Thursday 11 January 2024 16:00 (15 minutes)*

**Presenter:** UR REHMAN, Junaid

**Session Classification:** Young

Contribution ID: **60**

Type: **not specified**

## **Entanglement entropy and structure of proton**

*Tuesday 9 January 2024 16:30 (30 minutes)*

**Presenter:** KUTAK, Krzysztof (Instytut Fizyki Jadrowej Polskiej Akademii Nauk)

**Session Classification:** SM

Contribution ID: 61

Type: **not specified**

# **Impact parameter dependence of dilepton production: Wigner function approach and the role of photon polarizations**

*Tuesday 9 January 2024 17:00 (30 minutes)*

**Presenter:** SCHAEFER, Wolfgang

**Session Classification:** SM

Contribution ID: 62

Type: **not specified**

## **Next-to-leading power correction to event shape variables.**

**Presenter:** Mr MISHRA, Shubham (IIT Hyderabad)

**Session Classification:** SM

Contribution ID: 63

Type: **not specified**

## Dark Z boson and the W boson mass anomaly

*Thursday 11 January 2024 09:30 (30 minutes)*

**Presenter:** ENOMOTO, Kazuki

**Session Classification:** BSM



Contribution ID: **64**

Type: **not specified**

## **Tau anomalous magnetic moment measurements**

*Thursday 11 January 2024 10:00 (30 minutes)*

**Presenter:** VOLKOTRUB, Yuriy (Jagiellonian University)

**Session Classification:** BSM

Contribution ID: 65

Type: **not specified**

## **D\* polarisation measurements in semitauonic B-meson decays at Belle and Belle II experiments – model independent approach.**

*Thursday 11 January 2024 15:45 (15 minutes)*

**Presenter:** KALETA, Mateusz (INP PAS)

**Session Classification:** Young

Contribution ID: **66**

Type: **not specified**

## **HL-LHC Optics - Feasibility Studies for: ATLAS, ALICE and LHCb**

*Thursday 11 January 2024 11:00 (15 minutes)*

**Presenter:** PATEL, Pragati (Polish Academy of Sciences (PL))

**Session Classification:** Young