

# **Forward Physics and QCD at the LHC and the EIC - 798 WE-Heraeus Seminar**

## **Report of Contributions**

Contribution ID: **1**

Type: **not specified**

# Welcome

*Monday 23 October 2023 14:00 (10 minutes)*

**Presenters:** ROYON, Christophe (The University of Kansas (US)); KLASSEN, Michael; NEWMAN, Paul Richard (University of Birmingham (GB))

Contribution ID: 2

Type: **not specified**

## What's big about small x

*Monday 23 October 2023 14:10 (40 minutes)*

**Presenter:** VENUGOPALAN, Raju

Contribution ID: 3

Type: **not specified**

## Overview of forward physics at the LHC

*Monday 23 October 2023 14:50 (40 minutes)*

**Presenter:** JACOBS, Peter Martin (Lawrence Berkeley National Lab. (US))

Contribution ID: 4

Type: **not specified**

# The EIC project and the ePIC experiment

*Monday 23 October 2023 15:30 (40 minutes)*

**Presenter:** DALLA TORRE, Silvia (Universita e INFN Trieste (IT))

Contribution ID: 5

Type: **not specified**

## **The collinear parton distributions of the proton: Achievements and open issues**

*Monday 23 October 2023 16:35 (35 minutes)*

**Presenter:** NOCERA, Emanuele Roberto

Contribution ID: 6

Type: **not specified**

## Nuclear PDF updates from nCTEQ

*Monday 23 October 2023 17:10 (35 minutes)*

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

Contribution ID: 7

Type: **not specified**

## Proton structure and HERA data

*Monday 23 October 2023 17:45 (35 minutes)*

**Presenter:** WICHMANN, Katarzyna (Deutsches Elektronen-Synchrotron (DE))



Contribution ID: 8

Type: **not specified**

## PDFs from LHC data

*Monday 23 October 2023 18:20 (35 minutes)*

**Presenter:** SARKAR, Amanda (University of Oxford (GB))

Contribution ID: 9

Type: **not specified**

## Information on double-parton scattering from forward physics measurements

*Tuesday 24 October 2023 09:00 (35 minutes)*

**Presenters:** GAUNT, Jonathan (DESY); GAUNT, Jonathan Richard (University of Manchester (GB))

Contribution ID: **10**

Type: **not specified**

## **3D proton structure in momentum space from current and future forward- physics measurements**

*Tuesday 24 October 2023 09:35 (35 minutes)*

**Presenters:** BERTONE, Valerio; Dr BERTONE, Valerio (C.E.A. Paris-Saclay)

Contribution ID: **11**

Type: **not specified**

## **GPDs and TMDs at the electron-ion collider**

*Tuesday 24 October 2023 10:10 (35 minutes)*

**Presenter:** SOKHAN, Daria (CEA Saclay / Glasgow U.)

Contribution ID: 12

Type: **not specified**

## **Proton structure and tomography in fixed-target DIS experiments**

*Tuesday 24 October 2023 11:15 (35 minutes)*

**Presenters:** VAN HULSE, Charlotte; VAN HULSE, Charlotte (Universidade de Santiago de Compostela (ES))

Contribution ID: **13**

Type: **not specified**

## Discussion

*Tuesday 24 October 2023 11:50 (25 minutes)*

Contribution ID: **14**

Type: **not specified**

## **Conference photo (in the front of the lecture hall)**

*Tuesday 24 October 2023 12:15 (10 minutes)*

Contribution ID: 15

Type: **not specified**

## Probing gluon saturation via photon- hadron interactions at high energies

*Tuesday 24 October 2023 14:00 (35 minutes)*

**Presenter:** IANCU, Edmond (Université Paris-Saclay (FR))



Contribution ID: **16**

Type: **not specified**

## **The fine print of BFKL dynamics**

*Tuesday 24 October 2023 14:35 (35 minutes)*

**Presenters:** SABIO VERA, Agustin; Prof. SABIO VERA, Agustin

Contribution ID: 17

Type: **not specified**

# **The color glass condensate and forward physics at the LHC and EIC**

*Tuesday 24 October 2023 15:10 (35 minutes)*

**Presenter:** ARMESTO PEREZ, Nestor (Universidade de Santiago de Compostela (ES))

Contribution ID: **18**

Type: **not specified**

## **Low x physics at ep and pp Colliders**

*Tuesday 24 October 2023 16:10 (35 minutes)*

**Presenter:** NEWMAN, Paul Richard (University of Birmingham (GB))

Contribution ID: **19**

Type: **not specified**

## **Low-x structure functions and nuclear shadowing in heavy ion collisions**

*Tuesday 24 October 2023 16:45 (35 minutes)*

**Presenter:** VILLALOBOS BAILLIE, Orlando (University of Birmingham (GB))

Contribution ID: 20

Type: **not specified**

## **MSHT parton distribution function review and recent updates**

*Tuesday 24 October 2023 17:20 (10 minutes)*

**Presenters:** CRIDGE, Thomas; CRIDGE, Thomas (DESY)

Contribution ID: 21

Type: **not specified**

## **Global fits of proton PDFs with non- linear corrections**

*Tuesday 24 October 2023 17:30 (10 minutes)*

**Presenter:** DUWENTAESTER, Pit

Contribution ID: 22

Type: **not specified**

## **Kinematic fitting for inclusive physics with ePIC at the Electron Ion Collider**

*Tuesday 24 October 2023 17:40 (10 minutes)*

**Presenters:** MAPLE, Stephen; MAPLE, Stephen (University of Birmingham (GB)); MAPLE, Stephen

Contribution ID: 23

Type: **not specified**

## Extraction of the strong coupling with HERA and EIC inclusive data

*Tuesday 24 October 2023 17:50 (10 minutes)*

**Presenter:** DEMIROGLU, Zuhall Seyma (Stony Brook University)



Contribution ID: 24

Type: **not specified**

## **Impact of inclusive Electron Ion Collider data on collinear parton distributions**

*Tuesday 24 October 2023 18:00 (10 minutes)*

**Presenter:** Dr GIULI, Francesco (CERN)

Contribution ID: 25

Type: **not specified**

## Prompt photon production with up to three jets in POWHEG

*Tuesday 24 October 2023 18:10 (10 minutes)*

**Presenters:** NEUWIRTH, Alexander; NEUWIRTH, Alexander Puck (Institute for Theoretical Physics at the University of Münster)

Contribution ID: 26

Type: **not specified**

## Measuring prompt photon production with the ALICE Forward Calorimeter (FoCal) upgrade

*Tuesday 24 October 2023 18:20 (10 minutes)*

**Presenter:** JONAS, Florian (University of California Berkeley (US))

Contribution ID: 27

Type: **not specified**

## Next-to-leading order photon+jet production

*Tuesday 24 October 2023 18:30 (10 minutes)*

**Presenter:** MULLAN, Yair

Contribution ID: 28

Type: **not specified**

# **Complete NLO calculation of forward single-inclusive hadron production in pA collisions**

*Tuesday 24 October 2023 18:40 (10 minutes)*

**Presenter:** TAWABUTR, Yossathorn (University of Jyväskylä)

Contribution ID: 29

Type: **not specified**

## **The McDIPPER: A novel saturation- based 3D initial state model for heavy- ion collisions**

*Tuesday 24 October 2023 18:50 (10 minutes)*

**Presenter:** GARCIA-MONTERO, Oscar

Contribution ID: 30

Type: **not specified**

## **Diffraction single and double bremsstrahlung at the LHC within tensor pomeron model**

*Wednesday 25 October 2023 09:00 (35 minutes)*

**Presenter:** SZCZUREK, Antoni

Contribution ID: **31**

Type: **not specified**

## **Exclusive quarkonium photoproduction**

*Wednesday 25 October 2023 09:35 (35 minutes)*

**Presenter:** GUZEY, Vadim (University of Jyväskylä)



Contribution ID: 32

Type: **not specified**

## **Exclusive and diffractive physics at the electron-ion collider**

*Wednesday 25 October 2023 10:10 (35 minutes)*

**Presenter:** JENTSCH, Alexander

Contribution ID: 33

Type: **not specified**

## **TOTEM experiment: Pomeron and odderon exchange at LHC energies**

*Wednesday 25 October 2023 11:10 (35 minutes)*

**Presenters:** OSTERBERG, Kenneth (University of Helsinki); OSTERBERG, Kenneth (Helsinki Institute of Physics (FI))

Contribution ID: 34

Type: **not specified**

# Diffractive, elastic and total cross section physics at ATLAS

*Wednesday 25 October 2023 11:45 (35 minutes)*

**Presenter:** BERESFORD, Lydia Audrey (Deutsches Elektronen-Synchrotron (DE))

Contribution ID: 35

Type: **not specified**

## **The CMS precision proton spectrometer: Recent results and status**

*Wednesday 25 October 2023 12:20 (35 minutes)*

**Presenter:** BELLORA, Andrea (Universita e INFN Torino (IT))

Contribution ID: 36

Type: **not specified**

## **Recent results and prospects of UPC and diffraction physics at ALICE**

*Wednesday 25 October 2023 14:00 (35 minutes)*

**Presenter:** Prof. TAPIA TAKAKI, Daniel (University of Kansas)

Contribution ID: 37

Type: **not specified**

## Diffraction physics at LHCb

*Wednesday 25 October 2023 14:35 (35 minutes)*

**Presenter:** MCNULTY, Ronan (University College Dublin (IE))

Contribution ID: **38**

Type: **not specified**

## Discussion

*Wednesday 25 October 2023 15:10 (30 minutes)*

Contribution ID: 39

Type: **not specified**

## **Observation of enhanced long-range elliptic anisotropies inside high- multiplicity jets in pp collisions at the LHC**

*Wednesday 25 October 2023 16:10 (10 minutes)*

**Presenter:** GARDNER, Parker Taittinger (Rice University (US))



Contribution ID: 40

Type: **not specified**

## Forward jets measurements in proton- lead collisions at CMS

*Wednesday 25 October 2023 16:20 (10 minutes)*

**Presenter:** ARTEAGA ESCATEL, Saray (The University of Kansas (US))

Contribution ID: 41

Type: **not specified**

## **Studies of the LHC optics at point 1 and hard diffractive programme**

*Wednesday 25 October 2023 16:30 (10 minutes)*

**Presenter:** ARBIOL VAL, Sergio Javier (Polish Academy of Sciences (PL))

Contribution ID: 42

Type: **not specified**

## Designing silicon tracking detectors for high radiation environments

*Wednesday 25 October 2023 16:40 (10 minutes)*

**Presenters:** LOMAS, Josh (University of Birmingham); LOMAS, Josh (University of Birmingham (GB))

Contribution ID: 43

Type: **not specified**

## **Overview of ATLAS Roman Pot Detectors: Current status and future perspectives**

*Wednesday 25 October 2023 16:50 (10 minutes)*

**Presenter:** TRZEBINSKI, Maciej (Polish Academy of Sciences (PL))

Contribution ID: 44

Type: **not specified**

# **Feasibility and discovery potential of diffractive charm production measurement with the ATLAS Forward Proton Detectors**

*Wednesday 25 October 2023 17:00 (10 minutes)*

**Presenter:** LEWICKI, Maciej Piotr (Polish Academy of Sciences (PL))

Contribution ID: 45

Type: **not specified**

## Performance of the ATLAS forward proton detector

*Wednesday 25 October 2023 17:10 (10 minutes)*

**Presenters:** CLAWSON, Savannah; CLAWSON, Savannah (Deutsches Elektronen-Synchrotron (DE))

Contribution ID: 46

Type: **not specified**

## **Inclusive quarkonium photoproduction at the LHC via ultra-peripheral collisions**

*Wednesday 25 October 2023 17:20 (10 minutes)*

**Presenter:** LYNCH, Kate (University College Dublin (IE))

Contribution ID: 47

Type: **not specified**

# **Probing the gluonic structure of nuclei in ultraperipheral PbPb collisions via vector meson photoproduction with the CMS experiment**

*Wednesday 25 October 2023 17:30 (10 minutes)*

**Presenter:** ALCERRO ALCERRO, Luis (The University of Kansas (US))



Contribution ID: 48

Type: **not specified**

# Studying photonuclear cross sections with UPCs in ALICE

*Wednesday 25 October 2023 17:40 (10 minutes)*

**Presenter:** RAGONI, Simone (Creighton University (US))

Contribution ID: 49

Type: **not specified**

## **Physics prospects and data preparation for UPC studies with ALICE in Run 3**

*Wednesday 25 October 2023 17:50 (10 minutes)*

**Presenter:** KHATUN, Anisa (The University of Kansas (US))

Contribution ID: 50

Type: **not specified**

## Summary EMMI workshop on "Forward Physics in ALICE 3"

*Wednesday 25 October 2023 18:10 (20 minutes)*

**Presenter:** SCHICKER, Rainer (Heidelberg University (DE))

Contribution ID: 51

Type: **not specified**

## Search for new physics at the LHC using the missing mass method

*Wednesday 25 October 2023 18:00 (10 minutes)*

**Presenters:** BARROS, Maura (LIP and Universidade do Minho); BARROS, Maura (LIP - Laboratorio de Instrumentação e Física Experimental de Partículas (PT))

Contribution ID: 52

Type: **not specified**

## Poster session

*Wednesday 25 October 2023 18:30 (1 hour)*

Contribution ID: 53

Type: **not specified**

# Theory overview of photon-initiated production at the LHC

*Thursday 26 October 2023 09:00 (35 minutes)*

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

Contribution ID: 54

Type: **not specified**

# Photon-photon physics at the LHC in pp collisions

*Thursday 26 October 2023 09:35 (35 minutes)*

**Presenter:** ROYON, Christophe (The University of Kansas (US))

Contribution ID: 55

Type: **not specified**

## **Probing nuclear parton distributions with jet measurements in ultra- peripheral Pb+Pb collisions**

*Thursday 26 October 2023 10:10 (35 minutes)*

**Presenter:** COLE, Brian Andrew (Columbia University (US))



Contribution ID: **56**

Type: **not specified**

**tba**

*Thursday 26 October 2023 11:20 (35 minutes)*

**Presenters:** BERNLOCHNER, Florian (KIT Karlsruhe); BERNLOCHNER, Florian (KIT Karlsruhe); BERNLOCHNER, Florian Urs (University of Bonn (DE))

Contribution ID: 57

Type: **not specified**

## BSM physics at the EIC

*Thursday 26 October 2023 11:55 (35 minutes)*

**Presenters:** HAN, Tao; HAN, Tao (University of Wisconsin)

Contribution ID: **58**

Type: **not specified**

## Discussion

*Thursday 26 October 2023 12:30 (30 minutes)*

Contribution ID: 59

Type: **not specified**

## **LHC/EIC impact on cosmic ray physics**

*Friday 27 October 2023 09:35 (35 minutes)*

**Presenters:** GARZELLI, Maria Vittoria; GARZELLI, Maria Vittoria (INFN, Italia & Universidad de Granada, Espana); GARZELLI, Maria Vittoria; GARZELLI, Maria Vittoria

Contribution ID: **60**

Type: **not specified**

## **QCD challenges in air shower measurements**

*Friday 27 October 2023 09:00 (35 minutes)*

**Presenter:** Dr PIEROG, Tanguy

Contribution ID: **61**

Type: **not specified**

## Summary

*Friday 27 October 2023 10:10 (35 minutes)*

**Presenter:** KLASSEN, Michael

Contribution ID: **62**

Type: **not specified**

## Discussion

*Friday 27 October 2023 11:15 (30 minutes)*

Contribution ID: **63**

Type: **not specified**

## **Scientific organizers Poster prizes & closing words**

*Friday 27 October 2023 11:45 (15 minutes)*