

Workshop on Forward Physics and QCD at the LHC, the future Electron Ion Collider and Cosmic Ray Physics



Report of Contributions

Contribution ID: 1

Type: **not specified**

Vector meson photoproduction in ultra-peripheral p-Pb and Pb-Pb collisions at the LHC with ALICE

Vector mesons are copiously produced in ultra-peripheral collisions where the impact parameter is larger than the sum of the radii of the two projectiles, implying that electromagnetic induced processes become dominant.

Light vector meson photoproduction cross sections can be used to study Glauber-Gribov shadowing effects at the hadronic level while the photoproduction of heavy vector mesons is expected to be sensitive to the poorly known gluon structure function and gluon shadowing effects at low Bjorken x .

The ALICE Collaboration has published the first measurements of the ρ^0 , J/ψ and $\psi(2S)$ photoproduction cross section in ultra-peripheral Pb-Pb collisions and that for exclusive J/ψ photoproduction off protons in ultra-peripheral proton-lead collisions at the LHC and has obtained a substantially larger data set in 2015-2018 from LHC Run 2, allowing much more detailed studies of the production mechanism to be performed. In particular, the increased energy and more detailed measurements in the forward region in Run 2 give access to lower values of Bjorken- x than in previous studies. In this talk, an overview of the past results from Run 1 and the latest available results from Run 2 will be given. The results are compared to theoretical models.

Author: BROZ, Michal (Czech Technical University (CZ))

Presenter: BROZ, Michal (Czech Technical University (CZ))

Contribution ID: 2

Type: **not specified**

A generator of forward neutrons for ultra-peripheral collisions: nOOn

The study of photon-induced reactions in collisions of heavy nuclei at RHIC and the LHC has become an important direction of the research program of these facilities in recent years. In particular, the production of vector mesons in ultra-peripheral collisions (UPC) has been intensively studied. Owing to the intense photon fluxes, the two nuclei participating in such processes undergo electromagnetic dissociation producing neutrons at beam rapidities. Here, we introduce the nOOn (pronounced noon) Monte Carlo program, which generates events containing such neutrons. nOOn is a ROOT based program that can be interfaced with existing generators of vector meson production in UPC or with theoretical calculations of such photonuclear processes. nOOn can also be easily integrated with the simulation programs of the experiments at RHIC and the LHC. In this talk, an overview of the theoretical formalism together with short tutorial and few results will be given.

Authors: BROZ, Michal (Czech Technical University (CZ)); Prof. CONTRERAS NUNO, Jesus Guillermo (Czech Technical University (CZ)); Prof. TAPIA TAKAKI, Daniel (University of Kansas)

Presenter: BROZ, Michal (Czech Technical University (CZ))

Contribution ID: 3

Type: **not specified**

Impact parameter dependence of collinearly improved Balitsky-Kovchegov evolution

The Balitsky-Kovchegov equation has been solved including the impact-parameter dependence. Previous attempts to include this dependence have been spoiled by the presence of the so-called Coulomb tails produced by the evolution. We show, that using the collinearly-improved kernel to the BK equation, the Coulomb tails are heavily suppressed which allows for a correct description of existing data –both of the structure function and exclusive vector meson production–, as well as for the prediction of processes that are feasible for measurement at future facilities such as EICs.

Author: MATAS, Marek

Presenter: MATAS, Marek

Contribution ID: 4

Type: **not specified**

Multi-TeV flaring from high energy blazars: An evidence of the photohadronic process

The high energy peaked blazars are known to undergo episodes of flaring in GeV-TeV gamma-rays involving different time scales and the flaring mechanism is not yet well understood despite long term simultaneous multiwavelength observations. These gamma-rays en route to Earth undergo attenuation by the extra galactic background light.

Using the photohadronic model, where the seed photons of the jet follow a power-law spectrum and considering a template extragalactic background light model, we derive a simple relation between the observed multi-TeV gamma-ray flux and the intrinsic flux which depends on a single parameter. We study 42 flaring epochs of 23 blazars and found an excellent fit to most of the observed spectra, further supporting the photohadronic origin of multi-TeV gamma-rays.

We note that we can also constrain the power spectrum of the seed photons during the flaring period. Moreover, for blazars of unknown redshifts whose multi-TeV flaring spectra are known, stringent bounds on the former can be placed using the photohadronic model.

Authors: Dr SAHU, Sarira (Instituto de Ciencias Nucleares, Universidad Nacional Autónoma de México); Mr LOPEZ FORTIN, Carlos Eduardo (Instituto de Ciencias Nucleares, Universidad Nacional Autónoma de México)

Co-author: Dr NAGATAKI, Shigehiro (Astrophysical Big Bang Laboratory, RIKEN)

Presenter: Mr LOPEZ FORTIN, Carlos Eduardo (Instituto de Ciencias Nucleares, Universidad Nacional Autónoma de México)

Contribution ID: 5

Type: **not specified**

Super quasars

Here, in the axioms of dynamic space-matter, a unified theory of all mathematical and physical theories is presented, with the possibility of studying the energy levels of the singularity of the set of R_{ji} (n) objects of singularity in the quantum system of OL_{ji} (m) coordinates, the dynamic space-matter of the whole Universe.

Author: Mr ПАСТУШЕНКО, Владимир

Presenter: Mr ПАСТУШЕНКО, Владимир

Contribution ID: 6

Type: **not specified**

Super quasars

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Author: Mr ПАСТУШЕНКО, Владимир (<http://pva1.mya5.ru>)

Presenter: Mr ПАСТУШЕНКО, Владимир (<http://pva1.mya5.ru>)

Contribution ID: 7

Type: **not specified**

Spin and Forward Physics with the STAR detector: Measurements and Future Plans

The spin program at the STAR experiment at the Relativistic Heavy Ion Collider (RHIC) has explored many interesting topics and has helped our understanding of nuclear physics. In particular, non-vanishing transverse single-spin asymmetry measurements at RHIC and other experiments have shown that there is a rich substructure of the nucleon that needs further exploration in both theory and experiment. The STAR forward upgrade will utilize RHIC's unique capability of colliding polarized proton and heavy ion beams to make much more accurate measurements of Drell-Yan as well as jets, hadrons in jets, and dijets, among others. The new forward system will be in operation for the pp, pA and AA runs starting in Fall 2021 and utilize the latest developments in detector technologies so that they are ready for an electron ion collider (EIC). The forward upgrade will cover $2.5 < \eta < 4.0$, by installing two new forward tracking systems and a new calorimeter system. The tracking systems will consist of silicon disks and small thin gap chambers. The calorimeter system will consist of a preshower hodoscope, an electromagnetic calorimeter and a hadronic calorimeter. This talk will show some of the recent results from STAR's spin program as well as the design and capabilities of the forward upgrade and how it will complement measurements from a future EIC.

Authors: Mr KAPUKCHYAN, David (University of California, Riverside); FOR THE STAR COLLABORATION

Presenter: Mr KAPUKCHYAN, David (University of California, Riverside)

Contribution ID: 8

Type: **not specified**

New transverse single spin asymmetry measurement of π^0 production at zero degree using RHICf detector

It has been under debate for more than three decades for the origin of transverse single spin asymmetry of forward meson production in the polarized proton+proton collision at high energy. Despite of intensive theoretical developments in pQCD framework, it is still an open question whether it is initial or final state effects. On the contrary, the latest experimental results raised possible contribution from none pQCD degree of freedom to the observed asymmetry. Thus the new experiment RHICf is executed at the STAR interaction point in order to examine possible finite asymmetry in the kinematics range where non-pQCD is expected to dominate. In this talk, new preliminary results of π^0 asymmetry at almost zero degree measured in transversely polarized proton+proton collision at $\sqrt{s}=510\text{GeV}$ are presented. A global interpretation in conjunction with existing data is discussed.

Author: Dr NAKAGAWA, itaru (RIKEN)

Co-author: ON BEHALF OF RHICF COLLABORATION

Presenter: Dr NAKAGAWA, itaru (RIKEN)

Contribution ID: 9

Type: **not specified**

The ATLAS Forward Detector System - an Status Report

An overview of the status of the ATLAS Forward Detector system consisting on the detectors: LUCIC, ZDC, AFP and AIFA, will be given. I will also report on planned upgrades to each detector for LHC RUN-3 and HL-LHC.

Author: PINFOLD, James (University of Alberta (CA))

Presenter: PINFOLD, James (University of Alberta (CA))

Contribution ID: 10

Type: **not specified**

The Status and Future Plans of the MoEDAL Experiment and its MAPP- Detector Upgrade

AN overview of the MoEDAL experiment will be given, including latest results. In addition MoEDAL's plans for LHC Run-3 and Run-4 data taking will be presented, emphasizing the MAPP (MoEDAL Apparatus for Penetrating Particles) upgrade and its physics program.

Author: PINFOLD, James (University of Alberta (CA))

Presenter: PINFOLD, James (University of Alberta (CA))

Contribution ID: 11

Type: **not specified**

Desing and simulation of a cryostat and a field cage for a LArTPC for test in DUNE Collaboration

Currently, the DUNE Collaboration is making several tests in small detectors with the components that will be used in the DUNE detectors to avoid and detect future problems in the massive detectors. In this talk, I show the design and simulation of the cryostat and HV system for a LArTPC to make tests of relevance in cool electronics and photodetection for the DUNE Collaboration.

The design of the cryostat is based in the ASME Code and the simulation of the heat transfer is made in COMSOL Multiphysics. The design of the field cage was made based on the results of the simulation for the shape and the uniformity of the electric field in the active Drift volume. I present the simulated physical results and an estimated quote to construct this cryostat and HV system.

Authors: GRANADOS VAZQUEZ, Everardo; FELIX, Julian (Universidad de Guanajuato)

Presenter: GRANADOS VAZQUEZ, Everardo

Contribution ID: 12

Type: **not specified**

Cosmic-ray physics in ALICE at CERN

ALICE is one of the four main experiments at the CERN Large Hadron Collider. The location of the ALICE detector allows us to study the muonic component of cosmic rays, since it is located 52 meters underground with 28 meters of rock above it. The ALICE detector is able to detect atmospheric muons from extensive air showers, making possible the study of topics related to cosmic-ray physics. At this depth, only atmospheric muons with energies greater than 15 GeV can reach the detection zone. The analysis of the multiplicity distribution of atmospheric muons reconstructed by the Time Projection Chamber (TPC) of ALICE is presented. The comparison with modern Monte Carlo simulations solves the long standing issue of rate of events with an extremely large multiplicity of muons. An overview of analyses of recent data collected by ALICE is also discussed.

Author: GONZALEZ HERNANDEZ, Emma (Autonomous University of Puebla (MX))

Presenter: GONZALEZ HERNANDEZ, Emma (Autonomous University of Puebla (MX))

Contribution ID: 13

Type: **not specified**

The use of QCD evolution to detect gluon saturation in exclusive photo-production of vector mesons

We investigate photo-production of vector mesons J/Ψ and Upsilon measured both at HERA and LHC, using 2 particular fits of inclusive unintegrated gluon distributions. The fits are based on non-linear Balitsky-Kovchegov evolution (Kutak-Sapeta gluon; KS) and next-to-leading order Balitsky-Fadin-Kuraev-Lipatov evolution (Hentschinski-Sabio Vera-Salas gluon; HSS). We find that linear next-to-leading order evolution can only describe production at highest energies, if perturbative corrections are increased to unnaturally large values; rendering this corrections to a perturbative size, the growth with energy is too strong and the description fails. At the same time, the KS gluon, which we explore both with and without non-linear corrections, requires the latter to achieve an accurate description of the energy dependence of data. We interpret this observation as a clear signal for the presence of high gluon densities in the proton, characteristic for the onset of gluon saturation.

Author: Dr HENTSCHINSKI, Martin (Universidad de las Americas Puebla)

Presenter: Dr HENTSCHINSKI, Martin (Universidad de las Americas Puebla)

Contribution ID: 14

Type: **not specified**

Welcome

Monday 18 November 2019 09:35 (10 minutes)

Presenters: ROYON, Christophe (The University of Kansas (US)); DELEPINE, David

Contribution ID: 15

Type: **not specified**

Review of results using heavy-ion collisions at CMS

Monday 18 November 2019 09:45 (35 minutes)

Presenter: Dr KRINTIRAS, Georgios (The University of Kansas (US))

Session Classification: Heavy Ion Session I

Contribution ID: 16

Type: **not specified**

Probing QCD: from heavy ion collisions to the EIC

Monday 18 November 2019 10:20 (35 minutes)

Presenter: Dr MEHTAR-TANI, Yacine (Brookhaven National Laboratory)

Session Classification: Heavy Ion Session I

Contribution ID: 17

Type: **not specified**

Study of initial conditions in small collision systems at LHC energies with String Percolation Model

Monday 18 November 2019 11:25 (20 minutes)

Presenter: ALVARADO GARCIA, Jesus Ricardo (Autonomous University of Puebla (MX))

Session Classification: Heavy Ion Session II

Contribution ID: **18**

Type: **not specified**

Recent results of heavy ion collisions and future opportunities with fast timing upgrades at CMS

Monday 18 November 2019 11:45 (35 minutes)

Presenter: STAHL LEITON, Andre Govinda (Rice University (US))

Session Classification: Heavy Ion Session II

Contribution ID: 19

Type: **not specified**

A generator of forward neutrons for ultra-peripheral collisions: nOOn

Monday 18 November 2019 12:20 (30 minutes)

Presenter: BROZ, Michal (Czech Technical University (CZ))

Session Classification: Heavy Ion Session II

Contribution ID: 20

Type: **not specified**

Discussion session: Heavy ion physics

Monday 18 November 2019 12:50 (25 minutes)

Presenters: KRINTIRAS, Georgios (The University of Kansas (US)); Prof. TEJEDA-YEOMANS, Maria Elena (Universidad de Colima)

Session Classification: Heavy Ion Session II

Contribution ID: 21

Type: **not specified**

Intrinsic charm

Monday 18 November 2019 15:00 (35 minutes)

Presenter: BRODSKY, Stanley J. (SLAC National Accelerator Laboratory, Stanford University)

Session Classification: Vector meson / charm session

Contribution ID: 22

Type: **not specified**

Schwinger-Dyson Equations and Hadron Phenomenology

Monday 18 November 2019 15:35 (40 minutes)

Presenter: BASHIR, Adnan (University of Michoacan)

Session Classification: Vector meson / charm session

Contribution ID: 23

Type: **not specified**

Opportunities for Indirect Searches of Flavor Violation Higgs in Future DIS Experiments

Monday 18 November 2019 16:15 (20 minutes)

Presenter: GONZALEZ, Wendy

Session Classification: Vector meson / charm session

Contribution ID: 24

Type: **not specified**

Vector meson photoproduction in ultra-peripheral p-Pb and Pb-Pb collisions at the LHC with ALICE

Monday 18 November 2019 17:00 (35 minutes)

Presenter: BROZ, Michal (Czech Technical University (CZ))

Session Classification: Vector meson / charm session II

Contribution ID: 25

Type: **not specified**

Spin and Forward Physics with the STAR detector: Measurements and Future Plans

Monday 18 November 2019 17:35 (35 minutes)

Presenter: KAPUKCHYAN, David (University of California, Riverside)

Session Classification: Vector meson / charm session II

Contribution ID: 26

Type: **not specified**

Discussion session: Vector meson, charm

Monday 18 November 2019 18:10 (30 minutes)

Presenters: GOMEZ BOCK, Melina (Universidad de las Américas Puebla); BROZ, Michal (Czech Technical University (CZ))

Session Classification: Vector meson / charm session II

Contribution ID: 27

Type: **not specified**

Review of results on forward physics and diffraction by CMS

Wednesday 20 November 2019 15:00 (35 minutes)

Presenter: BALDENEGRO BARRERA, Cristian (The University of Kansas (US))

Session Classification: Saturation session

Contribution ID: 28

Type: **not specified**

Results, status and prospects of CMS-TOTEM Precision Proton Spectrometer

Tuesday 19 November 2019 10:10 (35 minutes)

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

Session Classification: Diffraction session I

Contribution ID: 29

Type: **not specified**

Recent results CMS and TOTEM on exclusive production, light-by-light scattering

Tuesday 19 November 2019 11:10 (30 minutes)

Presenter: ALBROW, Michael (Fermi National Accelerator Lab. (US))

Session Classification: Diffraction session II

Contribution ID: 30

Type: **not specified**

Measurements of single diffraction using forward proton tagging at ATLAS

Tuesday 19 November 2019 12:15 (30 minutes)

Presenter: CHWASTOWSKI, Janusz (Polish Academy of Sciences (PL))

Session Classification: Diffraction session II

Contribution ID: 31

Type: **not specified**

The ATLAS Forward Detector System - a Status Report

Tuesday 19 November 2019 11:40 (35 minutes)

Presenter: PINFOLD, James (University of Alberta (CA))

Session Classification: Diffraction session II

Contribution ID: 32

Type: **not specified**

Discussion session: diffraction

Tuesday 19 November 2019 12:45 (25 minutes)

Presenters: PINFOLD, James (University of Alberta (CA)); CHWASTOWSKI, Janusz (Polish Academy of Sciences (PL))

Session Classification: Diffraction session II

Contribution ID: 33

Type: **not specified**

Physics and detector requirements at zero degree of EIC

Tuesday 19 November 2019 15:35 (35 minutes)

Presenter: GOTO, Yuji (RIKEN)

Session Classification: Detector and future session I

Contribution ID: 34

Type: **not specified**

Very Forward Hadron Spectrometer progress

Wednesday 20 November 2019 12:20 (30 minutes)

Presenter: ALBROW, Michael (Fermi National Accelerator Lab. (US))

Session Classification: Cosmic ray session II

Contribution ID: 35

Type: **not specified**

Performance of CMS Endcap Precision Timing Sensors

Tuesday 19 November 2019 17:35 (30 minutes)

Presenter: LAZAROVITS, Margaret (The University of Kansas (US))

Session Classification: Detector and future session II

Contribution ID: 36

Type: **not specified**

Performance of the Zero Degree Calorimeters in CMS

Tuesday 19 November 2019 17:05 (30 minutes)

Presenter: MURRAY, Michael (The University of Kansas (US))

Session Classification: Detector and future session II

Contribution ID: 37

Type: **not specified**

Planning, Design, Construction, and Testing an Experimental System to Characterize Photomultipliers Type EMI 9954B using cosmic Rays

Presenter: CERVANTES VERA, Carlos

Session Classification: Detector and future session II

Contribution ID: 38

Type: **not specified**

Design and simulation of a cryostat and a field cage for a LAr TPC for test in DUNE Collaboration

Tuesday 19 November 2019 18:05 (20 minutes)

Presenter: GRANADOS VAZQUEZ, Everardo

Session Classification: Detector and future session II

Contribution ID: 39

Type: **not specified**

Discussion about detector, future

Tuesday 19 November 2019 18:25 (30 minutes)

Presenters: MURRAY, Michael (The University of Kansas (US)); GOTO, Yuji (RIKEN)

Session Classification: Detector and future session II

Contribution ID: 40

Type: **not specified**

Cosmic-ray physics in ALICE at CERN

Wednesday 20 November 2019 09:30 (30 minutes)

Presenter: GONZALEZ HERNANDEZ, Emma (Autonomous University of Puebla (MX))

Session Classification: Cosmic ray session I

Contribution ID: 41

Type: **not specified**

Muon puzzle in high energy air showers

Wednesday 20 November 2019 10:00 (35 minutes)

Presenter: SAKO, Takashi (Institute for Cosmic Ray Research, University of Tokyo)

Session Classification: Cosmic ray session I

Contribution ID: 42

Type: **not specified**

Novel radiation detector based on metal

Wednesday 20 November 2019 10:35 (35 minutes)

Presenter: FELIX, Julian (Universidad de Guanajuato)

Session Classification: Cosmic ray session I

Contribution ID: 43

Type: **not specified**

The Status and Future Plans of the MoEDAL Experiment and its MAPP-Detector Upgrade

Tuesday 19 November 2019 16:10 (30 minutes)

Presenter: PINFOLD, James (University of Alberta (CA))

Session Classification: Detector and future session I

Contribution ID: 44

Type: **not specified**

Multi-TeV flaring from high energy blazars: An evidence of the photohadronic process

Wednesday 20 November 2019 11:40 (20 minutes)

Presenter: LOPEZ FORTIN, Carlos Eduardo (Instituto de Ciencias Nucleares UNAM)

Session Classification: Cosmic ray session II

Contribution ID: 45

Type: **not specified**

How to distinguish majorana and dirac neutrino using astrophysical sources

Wednesday 20 November 2019 12:00 (20 minutes)

Presenters: YEBRA, Azarael; BARRANCO, Juan

Session Classification: Cosmic ray session II

Contribution ID: 46

Type: **not specified**

Discussion session: cosmic rays

Wednesday 20 November 2019 12:50 (25 minutes)

Presenters: RODRIGUEZ CAHUANTZI, Mario (Autonomous University of Puebla (MX)); SAKO, Takashi (Institute for Cosmic Ray Research, University of Tokyo)

Session Classification: Cosmic ray session II

Contribution ID: 47

Type: **not specified**

Recent status and prospects of LHCf and RHICf

Tuesday 19 November 2019 09:35 (35 minutes)

Presenter: SAKO, Takashi (Institute for Cosmic Ray Research, University of Tokyo)

Session Classification: Diffraction session I

Contribution ID: 48

Type: **not specified**

Recent TOTEM results

Thursday 21 November 2019 09:35 (35 minutes)

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

Session Classification: Soft physics, particle production, diffraction session I

Contribution ID: 49

Type: **not specified**

Evolution of the pp total cross-section, through a grey disk, from the LHC energies to the limit of asymptotic energy

Thursday 21 November 2019 10:10 (20 minutes)

Presenters: ALVARADO GARCIA, Jesus Ricardo (Autonomous University of Puebla (MX)); FIERRO ROJAS, Pablo (Autonomous University of Puebla (MX))

Session Classification: Soft physics, particle production, diffraction session I

Contribution ID: 50

Type: **not specified**

Is the Momentum Sum Rule Valid for Nuclear Structure Functions?

Thursday 21 November 2019 10:30 (35 minutes)

Presenter: BRODSKY, Stanley J. (SLAC National Accelerator Laboratory, Stanford University)

Session Classification: Soft physics, particle production, diffraction session I

Contribution ID: 51

Type: **not specified**

Diffractive Jet Production in Electron-Ion Collision

Thursday 21 November 2019 11:40 (30 minutes)

Presenter: PECCINI, Guilherme

Session Classification: Soft physics, particle production, diffraction session II

Contribution ID: 52

Type: **not specified**

Discussion session: Soft physics, particle production, diffraction

Thursday 21 November 2019 12:10 (50 minutes)

Presenters: ROYON, Christophe (The University of Kansas (US)); ALBROW, Michael (Fermi National Accelerator Lab. (US))

Session Classification: Soft physics, particle production, diffraction session II

Contribution ID: 53

Type: **not specified**

Search of the gluon saturation in the deep small-x with the LHCb experiment

Tuesday 19 November 2019 15:00 (35 minutes)

Presenter: Dr DA SILVA, Cesar Luiz (Los Alamos National Laboratory (US))

Session Classification: Detector and future session I

Contribution ID: 54

Type: **not specified**

The use of QCD evolution to detect gluon saturation in exclusive photo-production of vector mesons

Wednesday 20 November 2019 15:35 (35 minutes)

We investigate photo-production of vector mesons J/Ψ and Upsilon measured both at HERA and LHC, using 2 particular fits of inclusive unintegrated gluon distributions. The fits are based on non-linear Balitsky-Kovchegov evolution (Kutak-Sapeta gluon; KS) and next-to-leading order Balitsky-Fadin-Kuraev-Lipatov evolution (Hentschinski-Sabio Vera-Salas gluon; HSS). We find that linear next-to-leading order evolution can only describe production at highest energies, if perturbative corrections are increased to unnaturally large values; rendering this corrections to a perturbative size, the growth with energy is too strong and the description fails. At the same time, the KS gluon, which we explore both with and without non-linear corrections, requires the latter to achieve an accurate description of the energy dependence of data. We interpret this observation as a clear signal for the presence of high gluon densities in the proton, characteristic for the onset of gluon saturation.

Presenter: HENTSCHINSKI, Martin (Universidad de las Americas, Puebla)

Session Classification: Saturation session

Contribution ID: 55

Type: **not specified**

Impact parameter dependence of colinearly improved Balitsky-Kovchegov evolution

Wednesday 20 November 2019 16:10 (30 minutes)

Presenter: MATAS, Marek (CERN)

Session Classification: Saturation session

Contribution ID: 56

Type: **not specified**

Potential angular momentum within the scalar diquark model

Wednesday 20 November 2019 17:10 (30 minutes)

Presenter: AMOR QUIROZ, David Arturo

Session Classification: Saturation session II

Contribution ID: 57

Type: **not specified**

Discussion session: saturation

Wednesday 20 November 2019 17:40 (30 minutes)

Presenters: DA SILVA, Cesar Luiz (Los Alamos National Laboratory (US)); HENTSCHINSKI, Martin (Universidad de las Americas, Puebla)

Session Classification: Saturation session II

Contribution ID: 58

Type: **not specified**

Conclusion and farewell

Presenters: ROYON, Christophe (The University of Kansas (US)); DELEPINE, David

Session Classification: Soft physics, particle production, diffraction session II

Contribution ID: 59

Type: **not specified**

Evolution of the pp total cross-section in the asymptotic limit of high energies

Presenter: ALVARADO GARCIA, Jesus Ricardo (Autonomous University of Puebla (MX))

Session Classification: Soft physics, particle production, diffraction session II

Contribution ID: **60**

Type: **not specified**

Conclusion and farewell

Thursday 21 November 2019 13:00 (15 minutes)

Presenters: ROYON, Christophe (The University of Kansas (US)); DELEPINE, David