

# New Trends in High-Energy Physics



## Report of Contributions

Contribution ID: 1

Type: **not specified**

## Computer modeling of the production mode of MSSM Higgs boson

With the help of computer modelling, b-jets were identified under certain kinematical restrictions on the transverse momentum and pseudorapidity at the LHC with 14 TeV energy. The calculations were carried out in the framework of the MSSM model with the parameters determined from the latest experimental data. The selection of the most high-energy jets at the optimum value of their departure angle after a proton-proton collision was made. Only 5 jets were obtained which satisfy the restrictions on  $p_t > 180$  GeV. An analysis of the masses of the resulting jets allows to identify them as b-quark jets, into which top quarks decay with a probability of 99.8%. Taking into account the angular distribution of jets in the framework of the  $pp \rightarrow A \rightarrow tt$  reaction, as well as the growth of the cross section for the formation of a top-quark pair with energy, allow us to predict the mass A boson of the MSSM model in the region of about 370 GeV.

**Primary authors:** Dr OBIKHOD, Tetiana (Institute for Nuclear Research NAS of Ukraine); Mr PETRENKO, Ievgenii (Institute for Nuclear Research NAS of Ukraine)

**Presenter:** Dr OBIKHOD, Tetiana (Institute for Nuclear Research NAS of Ukraine)

**Session Classification:** New trends beyond the standard model

**Track Classification:** Default

Contribution ID: 3

Type: **not specified**

## **Study of polarised gluon structure of proton via prompt photon production in the SPD experiment at the NICA collider.**

Photons produced in the hard scattering of partons, named the prompt photons, provide information about the internal structure of hadrons.

NICA collider has possibility to provide new data to study the production of the prompt photons in the non - polarized and polarized proton-proton collisions which give an access to spin-dependent parton distribution functions for gluons ( like helicity, Sivers ).

Unpolarized and polarized physics with prompt photons and possibilities of the SPD detector in such measurements will be discussed in this content.

**Primary author:** RYMBEKOVA, Aierke

**Presenter:** RYMBEKOVA, Aierke

**Session Classification:** NICA & FAIR

**Track Classification:** Default

Contribution ID: 4

Type: **not specified**

## On particle-like models in vacuum space-times with torsion and nonmetricity tensors

In tensor analysis we deal with tensor objects that are different in nature: scalars, vectors, tensors of rank  $n$ . When the basis (four non-collinear non-coplanar basis vectors) is introduced at each point of space-time, all these objects may be treated as the  $n$ -polylinear combinations of the basis vectors with scalar coefficients. This means that the variation of any Lagrangian with tensor fields can be represented as the variation over scalar fields (with some special properties) and over the vector fields which define the basis. Moreover, if we introduce a holonomic basis, the non-gradient parts of the vectors of the conjugate basis can also be considered as fields that need to be introduced into the model. For each of the non-gradient fields included in the model, we can write equations of the Maxwell type with corresponding currents. In the case of vacuum models with real field functions, all such currents contribute to the distribution of mass density and its fluxes in the space-time.

We present some results of studies of particle-like models with Lagrangians containing only bilinear combinations of first derivatives of all fields defining the space-time geometry.

**Primary author:** OLYEYNIK, Vyacheslav (Odessa I.I.Mechnikov National University)

**Presenter:** OLYEYNIK, Vyacheslav (Odessa I.I.Mechnikov National University)

**Session Classification:** New trends beyond the standard model

**Track Classification:** Default

Contribution ID: 5

Type: **not specified**

## Multi-particle fields on a subset of simultaneity

We propose a model describing the scattering of hadrons as bound states of their constituent quarks. We analyze the role of simultaneity in measurements of the characteristics of different particles for the description of relativistic quantum systems. On the basis of this analysis we conclude that the relativistic scattering of bound states of particles should not be described by the fields defined on the Minkowski space, but on the subset of simultaneous events, which is singled out from the tensor product of two Minkowski spaces. Such fields are called multi-particle fields. Next we build the dynamic equations for the multi-particle fields on the subset of simultaneity, using the Lagrange method, similar to the case of “usual” single-particle fields. We then consider the gauge fields restoring the local internal symmetry on the subset of simultaneity. The dynamic equations for the multi-particle gauge fields describe such phenomena as confinement and asymptotic freedom of colored objects under certain boundary conditions, and the mechanism of spontaneous breaking of symmetry – under others. With these dynamic equations we are able to describe within a single model the quark confinement in hadrons, and their interaction during hadron scattering through the exchange of the bound states of gluons – the glueballs.

**Primary author:** Mr PTASHYNSKYI, Dmytro (Odessa National Polytechnic University)

**Co-authors:** Dr SHARPH, Igor (Odessa National Polytechnic University); Dr CHUDAK, Nataliia (Odessa National Polytechnic University); Mr POTIENKO, Oleksiy (Odessa National Polytechnic University); Mr MERKOTAN, Kyrylo (Odessa National Polytechnic University); Ms KRUTOGOLOVA, Ksenia (Odessa National Polytechnic University); Ms YUSHKEVYCH, Tetiana (Odessa National Polytechnic University)

**Presenter:** Mr PTASHYNSKYI, Dmytro (Odessa National Polytechnic University)

**Session Classification:** Morning session

**Track Classification:** Default

Contribution ID: 6

Type: **not specified**

## What can be deduced from the multiplicity distributions

We discuss the fact that the measured multiplicity distributions,  $P(N)$ , after closer inspection, exhibit some peculiarly enhanced void probability and oscillatory behavior of the corresponding modified combinants. Both of these features can shed new light on our understanding of the multiparticle production processes, and both were so far basically neglected (or ignored) in the usual analysis of data.

**Primary author:** Prof. WILK, Grzegorz (National Centre for Nuclear Research)

**Presenter:** Prof. WILK, Grzegorz (National Centre for Nuclear Research)

**Session Classification:** HEAVY NUCLEI & COLLECTIVE PROPERTIES

**Track Classification:** Default

Contribution ID: 8

Type: **not specified**

## The neutrino mass experiment KATRIN

The KARlsruhe TRItium Neutrino (KATRIN) experiment is a large-scale experiment with the objective to determine the effective electron anti-neutrino mass with an unprecedented sensitivity of  $0.2 \text{ eV}/c^2$  at 90% C.L. in a model-independent way. The measurement method is based on precision  $\beta$ -decay spectroscopy of molecular tritium.

The experimental setup consists of a high luminosity windowless gaseous tritium source, a magnetic electron transport system with differential and cryogenic pumping for tritium retention, and an electro-static spectrometer section for energy analysis, followed by a segmented detector system for counting transmitted  $\beta$ -electrons. Initial commissioning measurements with tritium were performed in 2018.

This talk will give an overview of the KATRIN experiment and its current status.

**Primary author:** FRAENKLE, Florian (Karlsruhe Institute of Technology)

**Presenter:** FRAENKLE, Florian (Karlsruhe Institute of Technology)

**Session Classification:** New trends beyond the standard model

**Track Classification:** Default

Contribution ID: 9

Type: **not specified**

## Diffractive Physics at the LHC

**Primary author:** TRZEBINSKI, Maciej (Institute of Nuclear Physics Polish Academy of Sciences)

**Presenter:** TRZEBINSKI, Maciej (Institute of Nuclear Physics Polish Academy of Sciences)

**Session Classification:** QCD&Regge

**Track Classification:** Default



Contribution ID: **10**

Type: **not specified**

## **Investigation of soft processes within the QCD color dipole picture**

**Primary author:** Dr MACHADO, Magno (IF-UFRGS)

**Presenter:** Dr MACHADO, Magno (IF-UFRGS)

**Session Classification:** QCD&Regge

**Track Classification:** Default

Contribution ID: 11

Type: **not specified**

## **Scattering in high energy QCD: particle production from high to low pt and back**

Based on

Phys.Rev. D99 (2019) no.1, 014043

Phys.Rev. D96 (2017) no.7, 074020 \

**Primary author:** JALILIAN-MARIAN, Jamal (CUNY- Baruch College)

**Presenter:** JALILIAN-MARIAN, Jamal (CUNY- Baruch College)

**Session Classification:** COSMOS

Contribution ID: 13

Type: **not specified**

## Quarkonia measurements with the ALICE experiment at the LHC

**Primary author:** FIONDA, Fiorella (University of Bergen (NO))

**Presenter:** FIONDA, Fiorella (University of Bergen (NO))

**Session Classification:** LHC

**Track Classification:** Default

Contribution ID: 14

Type: **not specified**

## Heavy-ion and fixed-target physics in LHCb

**Primary author:** Prof. PUGATCH, Valery (Insitute for Nuclear Research NAS Ukraine)

**Presenter:** Prof. PUGATCH, Valery (Insitute for Nuclear Research NAS Ukraine)

**Session Classification:** LHC

**Track Classification:** Default

Contribution ID: 15

Type: **not specified**

## **T2K: Recent results and future plans**

**Primary author:** PAOLONE, Vittorio (University of Pittsburgh)

**Presenter:** PAOLONE, Vittorio (University of Pittsburgh)

**Session Classification:** Morning session (experiment)

**Track Classification:** Default

Contribution ID: 16

Type: **not specified**

## Black Hole Torsion Effect and its Relation to Information

In a Schwarzschild, metric that includes torsion effects, the corresponding event horizon is calculated and from that, we calculate the entropy of such black hole as a function of spin density that event horizon depends upon. Next using the entropy expression in terms of the number of information bits we calculate the dependence of spin density on the formation number  $N$ . Furthermore, we calculate the Ricci scalar for the given metric and its dependence on information is derived for parallel and antiparallel torsion. Finally, expressions for spin density demonstrate that in a spherical and hyperbolic universe the spin density is quantized in units of  $\hbar$ , where in the case of a flat universe no spin density is possible.

**Primary author:** Dr GKIGKITZIS, Ioannis (Northrern Virginia Community College)

**Co-author:** Dr HARANAS, Ioannis (York University)

**Presenter:** Dr GKIGKITZIS, Ioannis (Northrern Virginia Community College)

**Session Classification:** COSMOS

**Track Classification:** Default

Contribution ID: 18

Type: **not specified**

## **Study of the hard double-parton scattering contribution to inclusive four-lepton production in pp collisions at 8 TeV with the ATLAS detector**

The inclusive production of four isolated charged leptons in pp collisions is analysed for the presence of hard double-parton scattering, using a dataset corresponding to 20.2 fb<sup>-1</sup>, recorded with the ATLAS detector at the LHC at centre-of-mass energy of 8 TeV. In the four-lepton invariant-mass range of  $80 < M_{4l} < 1000$  GeV, an artificial neural network is used to enhance the separation between single- and double-parton scattering based on the kinematics of the four leptons in the final state. An upper limit on the fraction of events originating from double-parton scattering is determined, together with a lower limit on the effective cross section.

**Primary author:** KUPRASH, Oleg (Tel Aviv University (IL))

**Presenter:** KUPRASH, Oleg (Tel Aviv University (IL))

**Session Classification:** Afternoon

**Track Classification:** Default

Contribution ID: 20

Type: **not specified**

## Precise Timing Measurement for the CMS Upgrade and Beyond

In this contribution, I review growing interest in large area fast timing detectors based on Low-Gain Avalanche Detectors (LGAD) with a timing resolution of 30-50ps. Combining precise timing of minimum ionizing particles (MIPs) with tracking significantly benefits performance of the detector by improving resolution and background rejection. Large-scale high-precision timing detectors have to face formidable challenges in almost every aspect: performance of sensors, segmentation and radiation tolerance, very low-power and low-noise electronics, cooling, low material budget, and large data volumes. I will report on the current status and new development of such detectors for high energy physics. In particular, I will discuss the proposal of the CMS Collaboration to instrument the CMS detector with a timing layer to measure MIPs during the High-Luminosity LHC data taking period. The high pseudorapidity region ( $1.6 < |\eta| < 3.0$ ) of the CMS detector will be instrumented with a hermetic layer of LGAD. This installation will represent the first large scale application of the LGAD in a high energy physics experiment.

**Primary author:** SOLA, Valentina (Torino University and INFN)

**Presenter:** SOLA, Valentina (Torino University and INFN)

**Session Classification:** LHC

**Track Classification:** Default



Contribution ID: 22

Type: **not specified**

## **Search for effects beyond the Standard Model in some decays of the Higgs boson**

**Primary author:** KORCHIN, Alexander (Kharkov Institute of Physics and Technology)

**Presenter:** KORCHIN, Alexander (Kharkov Institute of Physics and Technology)

**Session Classification:** Afternoon session

**Track Classification:** Default

Contribution ID: 23

Type: **not specified**

## Neutral meson measurements with the ALICE experiment

The ALICE experiment is designed to study the QCD properties of the matter created in proton-proton and heavy-ion collisions at the LHC.

Neutral mesons can be reconstructed in ALICE in a wide  $p_T$  range via two-photon decays.

Neutral meson measurements give an opportunity to validate NLO or NNLO pQCD calculations and to constrain the parton fragmentation functions. Neutral meson signal serves also as an excellent probe of low- $x$  partons and makes possible precise estimates of decay photons production needed for direct photon measurement.

ALICE experiment consists of several detector systems that are able to reconstruct neutral meson signals. The Electro-Magnetic Calorimeter (EMCal) and Photon Spectrometer (PHOS) can measure photons directly. Also, photons can be reconstructed from  $e^+e^-$  pairs that are products of photon conversion in the material of central barrel detectors.

An overview of the recent results from ALICE on neutral pion and eta meson production in pp, p-Pb, and Pb-Pb collisions will be presented.

**Primary author:** KOVALENKO, Oleksandr (National Centre for Nuclear Research, Poland)

**Presenter:** KOVALENKO, Oleksandr (National Centre for Nuclear Research, Poland)

**Session Classification:** Morning session

**Track Classification:** Default

Contribution ID: 24

Type: **not specified**

## Net-proton number fluctuations at the QCD critical point

Fluctuations of the net-proton number can be measured experimentally and thus provide important information about the matter created during heavy ion collisions. Especially, these quantities may give clues about the conjectured QCD critical point. We discuss the beam-energy dependence of ratios of first four cumulants of the net-proton number, obtained using the phenomenologically motivated model in which critical mode fluctuations couple to protons and anti-protons. We find that our model is able to qualitatively capture both the monotonic behavior of the lowest-order ratio seen in the experimental data from the STAR Collaboration as well as the non-monotonic behavior of higher-order ratios. The dependence of our results on the coupling strength and location of the critical point in the  $(\mu, T)$  plane is also discussed.

**Primary author:** Mr SZYMANSKI, Michal (University of Wrocław)

**Co-authors:** Dr BLUHM, Marcus (University of Wrocław); Dr SASAKI, Chihiro (University of Wrocław); Prof. REDLICH, Krzysztof

**Presenter:** Mr SZYMANSKI, Michal (University of Wrocław)

**Session Classification:** HEAVY NUCLEI & COLLECTIVE PROPERTIES

**Track Classification:** Default

Contribution ID: 26

Type: **not specified**

## Electromagnetic radiation from Au+Au collisions at 2.4 GeV center of mass energy measured with HADES

The HADES at SIS18 (GSI, Darmstadt) investigates QCD matter formed in heavy-ion collisions at 1-2 GeV per nucleon. In this energy regime the colliding nuclei are rather compressed than heated, reaching net baryon densities of a few times normal nuclear matter density. To understand the microscopic structure of matter in the region of high baryochemical potential, HADES systematically measures virtual photons from elementary and heavy-ion collisions. These electromagnetic probes access the entire space-time-evolution of the fireball and leave the collision zone without further interactions. Furthermore, in contrast to real photons, they carry additional information like their invariant mass. Thus they provide unique information about the various stages of the collision. The results from the largest system - Au+Au at 2.4 GeV center of mass energy - indicate strong medium effects beyond a pure superposition of individual NN collisions. The low invariant mass spectra are characterized by a nearly exponential shape, suggesting strong in-medium modifications of the vector meson spectral function due to coupling to abundant baryon resonances. In this contribution the results of the differential data analysis will be presented and compared to available model calculations.

**Primary author:** DITTERT, Dominique (TU Darmstadt)

**Presenter:** DITTERT, Dominique (TU Darmstadt)

**Session Classification:** Afternoon session

**Track Classification:** Default

Contribution ID: 29

Type: **not specified**

## ANTARES & KM3NeT: the neutrino telescopes in the Mediterranean Sea

Thanks to their weakly-interacting nature, neutrinos traverse cosmic distances without being deflected. They can provide information about far astrophysical object as a complementary probe of the Universe with respect to other messengers such as multi-wavelength light, charged cosmic rays and gravitational waves. Here, an overview of the neutrino telescopes currently operating in the Mediterranean Sea will be provided. The ANTARES (Astronomy with a Neutrino Telescope and Abyss environmental RESearch) detector was the first neutrino telescopes operating in sea water since 2008 and many interesting results regarding astrophysical sources have been obtained with this telescope. In the last months, instrumented lines of the second future km<sup>3</sup>-scale telescope KM3NeT (Cubic Kilometre Neutrino Telescope) have been successfully deployed. It will be a multi-site detector, a site (KM3NeT-ARCA) will be focused on astrophysical studies and the other (KM3NeT-ORCA) will be dedicated to fundamental physics studies, like the neutrino mass hierarchy. Here, the first results and the expected performances of KM3NeT will be also described.

**Primary author:** SANGUINETI, Matteo (University of Genova, INFN Genova)

**Presenter:** SANGUINETI, Matteo (University of Genova, INFN Genova)

**Session Classification:** New trends beyond the standard model

**Track Classification:** Default

Contribution ID: 30

Type: **not specified**

## Status of the Jiangmen Underground Neutrino Observatory

The Jiangmen Underground Neutrino Observatory (JUNO) is a next generation multi-purpose antineutrino detector currently under construction in Jiangmen, China.

The central detector, containing 20 kton of liquid scintillator, is equipped with ~18,000 20 inch and ~25,000 3 inch PMTs. Measuring the reactor antineutrinos of two powerplants at a baseline of 53 km with an unprecedented energy resolution of 3% at 1 MeV, the main physics goal is to determine the neutrino mass hierarchy within six years of run time with a significance of 3-4 sigma. Additional physics goals are the measurement of solar neutrinos, geo-neutrinos, supernova burst neutrinos, the diffuse supernova neutrino background and the oscillation parameters  $\sin^2(\theta_{12})$ ,  $\Delta m_{12}^2$  and  $|\Delta m_{ee}^2|$  with a precision < 1% as well as the search for proton decays. Data taking is expected to start in 2021.

**Primary author:** SCHEVER, Michaela (Forschungszentrum Juelich IKP-2)

**Presenter:** SCHEVER, Michaela (Forschungszentrum Juelich IKP-2)

**Session Classification:** Afternoon session

**Track Classification:** Default

Contribution ID: 31

Type: **not specified**

## **Multidimensional Scalar-Tensor Gravity: Theory and Experiment**

**Primary authors:** ZHUK, Alexander (Odessa National University, Istanbul Technical University); Dr CHOPOVSKY, Alexey (Odessa National University); YALÇINKAYA, Ezgi (Istanbul Technical University); Dr AKARSU, Özgür (Istanbul Technical University (ITU))

**Presenter:** YALÇINKAYA, Ezgi (Istanbul Technical University)

**Session Classification:** COSMOS

**Track Classification:** Default

Contribution ID: 32

Type: **not specified**

## The PANDA Experiment at FAIR

PANDA (Antiproton Annihilation at Darmstadt) is a fixed target experiment that is going to address a wide range of open questions in the hadron physics sector by studying the interactions between antiprotons with high momenta and a stationary proton target. The PANDA detector is currently under construction and will be situated in the HESR (High Energy Storage Ring) that is part of the future FAIR (Facility for Antiproton and Ion Research) accelerator complex on the area of the GSI Helmholtzzentrum für Schwerionenforschung in Darmstadt. The HESR is going to provide a beam of cooled antiprotons up to momenta of 15 GeV/c and can be operated in a high luminosity and a high resolution mode. Due to the forward boost of the secondary particles, the PANDA detector contains a target and a forward spectrometer in order to cover nearly the full solid angle around the interaction point. The key components of the detector are: precise tracking in strong magnetic fields, excellent particle identification, and high resolution calorimeters. In addition to that, its design is flexible enough to change or add individual detector components for specific experiments. This talk will cover technical aspects and specifications of all PANDA subdetectors in both spectrometers as well as the two foreseen proton targets and the implemented magnets.

**Primary author:** Mr SCHMIDT, Mustafa (II. Physikalisches Institut)

**Presenter:** Mr SCHMIDT, Mustafa (II. Physikalisches Institut)

**Session Classification:** NICA & FAIR

**Track Classification:** Default



Contribution ID: 33

Type: **not specified**

## The 3.5 keV dark matter candidate line in the Milky Way

**Primary author:** SAVCHENKO, Denys (Bogolyubov Institute for Theoretical Physics of the NAS of Ukraine)

**Presenter:** SAVCHENKO, Denys (Bogolyubov Institute for Theoretical Physics of the NAS of Ukraine)

**Session Classification:** COSMOS

**Track Classification:** Default

Contribution ID: 34

Type: **not specified**

## The shape of the interaction region of colliding protons in a Regge model

A complementary way to obtain some information about the high-energy scattering processes is by passing from the momentum transfer to the impact parameter space through a Fourier-Bessel transform. In this work, we analyze the spatial structure of the interaction region of two colliding protons in the light of the recent TOTEM data using a dipole Regge model. The discrepancies of the inelasticity profile from a Gaussian shape can be ascribed to the two prominent structures seen upon the otherwise exponential diffraction cone, namely the “break” and the diffraction minimum. The long tail at large impact parameters is related to the low- $|t|$  “break” while the suppressed behavior at small impact parameter values is related to the diffraction minimum.

**Primary author:** Mr SZANYI, István (Eötvös Loránd University & Uzhgorod National University)

**Co-author:** Prof. JENKOVSKY, László (Bogolyubov Institute for Theoretical Physics, National Academy of Sciences of Ukraine)

**Presenter:** Mr SZANYI, István (Eötvös Loránd University & Uzhgorod National University)

**Session Classification:** QCD&Regge

**Track Classification:** Default

Contribution ID: 35

Type: **not specified**

## **A new concept of spin and orbital momentum operators**

**Primary author:** Mr ZAGOSKIN, Taras (Kharkov Institute of Physics and Technology)

**Presenter:** Mr ZAGOSKIN, Taras (Kharkov Institute of Physics and Technology)

**Session Classification:** QCD&Regge

**Track Classification:** Default

Contribution ID: 36

Type: **not specified**

## The PANDA experiment at FAIR

**Primary author:** KAVATSYUK, Myroslav (KVI-CART, University of Groningen)

**Presenter:** KAVATSYUK, Myroslav (KVI-CART, University of Groningen)

**Session Classification:** Afternoon session

**Track Classification:** Default

Contribution ID: 37

Type: **not specified**

## Exploring baryon rich QCD matter with HADES and CBM

**Primary author:** HARABASZ, Szymon (Technische Universität Darmstadt)

**Presenter:** HARABASZ, Szymon (Technische Universität Darmstadt)

**Session Classification:** Afternoon session

**Track Classification:** Default

Contribution ID: 38

Type: **not specified**

## SU(3) parity-doublet quark-hadron chiral model, lattice data, and QCD thermodynamics

The thermodynamic properties of QCD matter at high temperatures and densities are explored within the SU(3) flavor parity-doublet quark-hadron chiral model.

The quark sector of the model is tuned to describe the lattice QCD thermodynamics at  $\mu_B = 0$ .

The resulting lines of constant physics as well as the structure of the baryon number susceptibilities in the temperature/chemical potential plane are studied in some detail.

The model predicts three consecutive transitions, the nuclear first-order liquid-vapor phase transition, chiral symmetry restoration, and transition to quark-dominated phase. All three transitions are of the crossover type for most of the  $T - \mu_B$ -plane.

The deviations from the free hadron gas baseline in the crossover temperature region at  $\mu_B = 0$  are mainly attributed to the remnant of the liquid-vapor transition in nuclear matter. The chiral phase transition determines the baryon fluctuations at much higher  $\mu_B$ , and at even higher baryon densities the behavior of fluctuations is controlled by the deconfinement transition.

The model is found to describe well the static properties of neutron stars as well as the neutron star merger observations.

This work presents the first effective EoS which accurately describes lattice QCD results as well as observations from physics at  $T = 0$  and high densities.

**Primary authors:** Mr MOTORNENKO, Anton; Dr STEINHEIMER, Jan (FIAS); VOVCHENKO, Volodymyr (Goethe University Frankfurt); Prof. SCHRAMM, Stefan (FIAS); STOECKER, Horst (FIAS Goethe Universitaet Frankfurt GSI)

**Presenter:** Mr MOTORNENKO, Anton

**Session Classification:** Afternoon session

**Track Classification:** Default

Contribution ID: 39

Type: **not specified**

## Status of the NICA project

**Presenter:** LEDNICKY, Richard (JINR)

**Session Classification:** NICA & FAIR

**Track Classification:** Default

Contribution ID: 40

Type: **not specified**

## **Silicon Tracking System of the CBM Experiment at FAIR**

**Presenter:** LYMANETS, Anton (GSI, Darmstadt, Germany)

**Session Classification:** NICA & FAIR

**Track Classification:** Default



Contribution ID: 42

Type: **not specified**

## **Superstatistics and the effective QCD phase diagram**

**Presenter:** AYALA, Alejandro (Instituto de Ciencias Nucleares, UNAM)

**Session Classification:** HEAVY NUCLEI & COLLECTIVE PROPERTIES

**Track Classification:** Default

Contribution ID: 43

Type: **not specified**

## **Lambda polarization in peripheral heavy ion collisions**

**Presenter:** Dr P. CSERNAI, László (University of Bergen)

**Session Classification:** HEAVY NUCLEI & COLLECTIVE PROPERTIES

**Track Classification:** Default

Contribution ID: 44

Type: **not specified**

## **Phase transitions and Bose-Einstein condensation in alpha-nucleon matter**

**Presenter:** SATAROV, Leonid (Frankfurt Institute for Advanced Studies, Frankfurt am Main)

**Session Classification:** HEAVY NUCLEI & COLLECTIVE PROPERTIES

**Track Classification:** Default

Contribution ID: 45

Type: **not specified**

## **Towards equation of state of hot QCD at finite baryon density**

**Presenter:** VOVCHENKO, Volodymyr (Goethe University Frankfurt)

**Session Classification:** HEAVY NUCLEI & COLLECTIVE PROPERTIES

**Track Classification:** Default

Contribution ID: 46

Type: **not specified**

## **Entanglement Entropy in High Energy QCD**

**Presenter:** LUBLINSKY, Michael

**Session Classification:** HEAVY NUCLEI & COLLECTIVE PROPERTIES

**Track Classification:** Default

Contribution ID: 47

Type: **not specified**

## **Induced color charges, effective gluon-photon-photon vertex in QGP. Application to heavy-ion collisions**

**Presenter:** SKALOZUB, Vladimir (Oles Honchar Dnipro National University, Gagarin Avenue, 72, 49010, Dnipro, Ukraine)

**Session Classification:** HEAVY NUCLEI & COLLECTIVE PROPERTIES

**Track Classification:** Default

Contribution ID: 48

Type: **not specified**

## **Rho and Rho' production at HERA**

**Presenter:** LEVONIAN, Sergey (DESY)

**Session Classification:** Morning session (experiment)

**Track Classification:** Default

Contribution ID: 49

Type: **not specified**

## **Results on Neutrino and Antineutrino Oscillations from the NOvA Experiment**

**Presenter:** NOSEK, Tomas (Charles University, Institute of Particle and Nuclear Physics)

**Session Classification:** Morning session (experiment)

**Track Classification:** Default



Contribution ID: 50

Type: **not specified**

## KamLAND-Zen

**Presenter:** UESHIMA, Kota

**Session Classification:** Morning session (experiment)

**Track Classification:** Default

Contribution ID: 51

Type: **not specified**

## **Recent results and future plans of the MUSE collaboration**

**Presenter:** ROSTOMYAN, Tigran (Dr.)

**Session Classification:** Morning session (experiment)

**Track Classification:** Default

Contribution ID: 52

Type: **not specified**

## Status and prospects of Belle II experiment

**Presenter:** BOŹEK, Andrzej (IFJ PAN Kraków)

**Session Classification:** Morning session (experiment)

**Track Classification:** Default

Contribution ID: 53

Type: **not specified**

## **ICARUS: a new challenge within the Fermilab Short Baseline Neutrino Program**

**Presenter:** Dr RAPPOLDI, Andrea ( INFN Pavia)

**Session Classification:** Morning session (experiment)

**Track Classification:** Default

Contribution ID: 54

Type: **not specified**

## **Latest results from neutrino oscillation experiment Daya Bay**

**Presenter:** VOROBEL, Vit

**Session Classification:** Morning session (experiment)

**Track Classification:** Default

Contribution ID: 55

Type: **not specified**

## **Eikonal Approximation in High-Energy Physics**

**Presenter:** KORIUUKINA, Viktoriia (National Science Center Kharkov Institute of Physics and Technology)

**Session Classification:** Morning session (experiment)

**Track Classification:** Default

Contribution ID: 56

Type: **not specified**

## **Heavy quark production in DIS (Charm and beauty review H1/ZEUS combined)**

**Presenter:** AUSHEV, Volodymyr (Kiev National university)

**Session Classification:** Afternoon session

**Track Classification:** Default

Contribution ID: 57

Type: **not specified**

## **Experiment DsTau - study of tau neutrino production at CERN SPS**

**Presenter:** GORNUSHKIN, Yury (JINR)

**Session Classification:** Afternoon session

**Track Classification:** Default



Contribution ID: 58

Type: **not specified**

## Regge cuts and NNLLA BFKL

**Presenter:** FADIN, Victor (Budker Institute of Nuclear Physics SB RAS and Novosibirsk State University, Russia)

**Session Classification:** QCD&Regge

**Track Classification:** Default

Contribution ID: 59

Type: **not specified**

## Searching for odderon in exclusive reactions

**Presenter:** LEBIEDOWICZ, Piotr (Institute of Nuclear Physics PAN)

**Session Classification:** QCD&Regge

**Track Classification:** Default

Contribution ID: 60

Type: **not specified**

## **Models of elastic pp scattering at high energies - possibilities, limitations, assumptions and open questions**

**Presenter:** PROCHAZKA, Jiri (Acad. of Sciences of the Czech Rep. (CZ))

**Session Classification:** QCD&Regge

**Track Classification:** Default

Contribution ID: 61

Type: **not specified**

## **Recent results on inclusive quarkonium production in pp collisions**

**Presenter:** SCHAEFER, Wolfgang (Institute of Nuclear Physics PAN)

**Session Classification:** QCD&Regge

**Track Classification:** Default

Contribution ID: 62

Type: **not specified**

## **Central production in proton-proton collisions in ALICE at the LHC**

**Presenter:** SCHICKER, Rainer (Phys. Inst., Uni Heidelberg)

**Session Classification:** LHC

**Track Classification:** Default

Contribution ID: 63

Type: **not specified**

## **Production of light (anti-)nuclei and exotica states in ALICE**

**Presenter:** COLOCCI, Manuel (University and INFN, Bologna)

**Session Classification:** LHC

**Track Classification:** Default

Contribution ID: 64

Type: **not specified**

## Collectivity in small systems with ALICE

**Presenter:** KRIZKOVA GAJDOSOVA, Katarina

**Session Classification:** LHC

**Track Classification:** Default

Contribution ID: 65

Type: **not specified**

## **Polarized charm and bottom quark production in proton-proton collisions at the LHC**

**Presenter:** KOTLYAR, Volodymyr (Akhiezer Institute for Theoretical Physics at National Science Center Kharkov Institute of Physics and Technology)

**Session Classification:** LHC

**Track Classification:** Default



Contribution ID: 66

Type: **not specified**

## **Status and prospects of heavy-ion physics at the LHC**

**Presenter:** Dr SHULGA, Evgeny (Weizmann Institute of Science, Israel )

**Session Classification:** LHC

**Track Classification:** Default

Contribution ID: 67

Type: **not specified**

## **Status and prospects of Higgs Physics at the LHC**

**Presenter:** KORYTOV, Andrey

**Session Classification:** LHC

**Track Classification:** Default

Contribution ID: **68**

Type: **not specified**

## **Central exclusive production in LHCb**

**Presenter:** VAN HULSE, Charlotte (UCD)

**Session Classification:** LHC

**Track Classification:** Default

Contribution ID: 69

Type: **not specified**

## **The Biggest Structures in the Universe and the Cosmological Principle**

**Presenter:** ZHUK, Alexander (Odessa National University, Istanbul Technical University)

**Session Classification:** COSMOS

**Track Classification:** Default

Contribution ID: 70

Type: **not specified**

## **Ultra-high energy cosmic rays from supermassive black holes**

**Presenter:** Dr URYSON, Anna (Lebedev Physical Institute RAS)

**Session Classification:** COSMOS

**Track Classification:** Default

Contribution ID: 71

Type: **not specified**

## **Probable Physics of the First Parts of Second in Life of our Universe**

**Presenter:** Prof. BURDYUZHA, Vladimir (Astro-Space Center, Lebedev Physical Institute, Russian Academy of Sciences, Moscow)

**Track Classification:** Default

Contribution ID: 72

Type: **not specified**

## **G. Gamow in Odessa (historical excursus)**

**Presenter:** Dr RYABOV, Mikhail (Odessa National University)

**Track Classification:** Default

Contribution ID: 73

Type: **not specified**

## **The Pierre Auger Observatory: studying the highest energy frontier**

**Presenter:** VALINO, Ines (Gran Sasso Science Institute and INFN Laboratori Nazionali del Gran Sasso)

**Track Classification:** Default



Contribution ID: 74

Type: **not specified**

## **Tests of CPT Invariance at the Antiproton Decelerator of CERN**

**Presenter:** HORVATH, Dezso (Wigner RCP, Budapest (HU))

**Track Classification:** Default

Contribution ID: 75

Type: **not specified**

## **The THESEUS ESA M5 candidate mission**

**Presenter:** BOZZO, Enrico (University of Geneva)

**Track Classification:** Default

Contribution ID: 76

Type: **not specified**

## **Galilean covariance and Spin 1/2 Representations**

**Presenter:** XAVIER ANTUNES PETRONLO, Gustavo (Universidade de Brasília)

**Track Classification:** Default

Contribution ID: 77

Type: **not specified**

## **Latest results from neutrino oscillation experiment Daya Bay**

**Presenter:** VOROBEL, Vit

**Track Classification:** Default

Contribution ID: 78

Type: **not specified**

## **Octonionic Methods in Field Theory**

**Presenter:** CATTO, Sultan (City University of New York)

**Track Classification:** Default

Contribution ID: **80**

Type: **not specified**

## **On particle-like models in vacuum space-times with torsion and nonmetricity tensors**

**Presenter:** Dr OLEYNIK, Vyacheslav (Odessa National University)

**Track Classification:** Default

Contribution ID: **81**

Type: **not specified**

## **SHiP: Search for Hidden Particles**

**Presenter:** GORKAVENKO, Volodymyr (Taras Shevchenko National University of Kyiv)

**Track Classification:** Default

Contribution ID: **82**

Type: **not specified**

## **Dark matter searches at the LHC**

**Presenter:** Dr LAFORGE, Bertrand (LPNHE, Sorbonne Université, France )

**Track Classification:** Default



Contribution ID: 83

Type: **not specified**

## **The electroweak phase transition in spontaneously magnetized plasma**

**Presenter:** MINAIEV, Pavlo (gt)

**Track Classification:** Default

Contribution ID: 84

Type: **not specified**

## **Non-Abelian axial anomaly, low energy theorem and decays of pseudoscalar mesons**

**Presenter:** KLOPOT, Yaroslav (JINR/BITP)

**Track Classification:** Default

Contribution ID: 85

Type: **not specified**

## **On the Centrality Determination with Forward Proton Detectors**

**Presenter:** CIESLA, Krzysztof (Institute of Nuclear Physics PAN)

**Track Classification:** Default

Contribution ID: 87

Type: **not specified**

## **Late stage Universe: cosmological models with interacting and non-interacting perfect fluids and scalar fields**

**Presenter:** BURGAZLI, Alvina

Contribution ID: **88**

Type: **not specified**

## **The PhD Guide to the Experiments in HEP**

**Presenter:** Dr TRZEBIŃSKI, Maciej (Institute of Nuclear Physics Polish Academy of Sciences Cracow, Poland)