

# The 8th International Conference "Distributed Computing and Grid-technologies in Science and Education"

10-14 September, 2018, Dubna, Russia

**Monday, 10 September, 2018, LIT Conference Hall**

<b>9.00-10.00</b>	<b>Registration at the LIT Conference Hall</b>
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## Plenary

10.00-10.30	Opening welcome from JINR Scientific Program of JINR  MATVEEV Victor
10.30-10.50	Welcome from Sponsors
10.50-11.20	JINR Multifunctional Information and Computing Complex: Status and Perspectives <u>KORENKOV Vladimir</u> , DOLBILOV Andrey, MITSYN Valery, STRIZH Tatiana, KUTOVSKIY Nikolay, PODGAINY Dmitry, STRELTSOVA Oksana, TROFIMOV Vladimir
11.20-11.50	Cloud-based Computing for LHAASO experiment at IHEP <u>Qiulan HUANG</u> , Weidong LI, Yaodong CHENG, Haibo LI, Tao CUI, Xiaowei JIANG
<b>11.50-12.10</b>	<b>Coffee</b>
12.10-12.40	Building up Intelligible Parallel Computing World VOEVODIN Vladimir
12.40-13.10	File Transfer Service at Exabyte scale MANZI Andrea
13.10-13.30	How to build infrastructure for HPC with Huawei Mikhail Pleskunin
<b>13.30-14.30</b>	<b>Lunch</b>
17.00	<b>Poster Session</b>

<b>18.00-20.00</b>	<b>Welcome Party</b>
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## Big data Analytics, Machine learning

### Conference Hall

14.30-14.45	Semantic information management: the approach to semantic assets development lifecycle <u>Yury Akatkin</u> , Elena Yasinovskaya, Michael Bich
14.45-15.00	Agent Technology Situational Express Analysis in Assessment of Technological Development Level of the BRICS Countries Evgeny Tretyakov, Diana Koshlan, Vladimir Korenkov, Boris Onykij, Alexey Artamonov
15.00-15.15	Cluster analysis of scientific payload to execute it efficiently in distributed computing environment Maksim Gubin, Mikhail Titov, Maria Grigoryeva
15.15-15.30	Optimization of Neural networks training with Vector-Free heuristic on Apache Spark <u>Kamil Khamitov</u> , Nina Popova
<b>15.30-16.00</b>	<b>Coffee</b>
16.00-16.15	Checking foreign counterparty companies using Big Data Lazar Badalov, Sergey Belov, Ivan Kadochnikov
16.15-16.30	Labour market monitoring system Sergey Belov, Irina Filozova, Ivan Kadochnikov, Vladimir Korenkov, Roman Semenov, Petr Zrellov, Pavel Smelov
16.30-16.45	Многомерный анализ данных о продажах на основе технологии OLAP Сауле Сарсимбаева, Владимир Димитров
16.45-17.00	Improving the efficiency of smart grids of energy consumption with application of systems of artificial intellect <u>Eugene Shchetinin</u> , Mikchail Berezhkov

## Desktop grid technologies and volunteer computing Room - 406B

14.30-14.45	Integration of the BOINC system and additional software packages Nikolay Khrapov
14.45-15.00	The activity of Russian Chapter of International Desktop Grid Federation Ilya Kurochkin
15.00-15.15	Modeling of task scheduling in desktop grid systems at the initial stage of development Ilya Kurochkin, Gerk Evgeny
15.15-15.30	Supporting Efficient Execution of Many-Task Applications with Everest Oleg Sukhoroslov, Sergey Smirnov, Sergey Volkov
<b>15.30-16.00</b>	<b>Coffee</b>
16.00-16.15	The game character of collaboration in volunteer computing community Victor Tishchenko
16.15-16.30	BOINC-based comparison of the geoacoustic inversion algorithms efficiency Oleg Zaikin, Pavel Petrov, Ilya Kurochkin
16.30-16.45	Реализация вычислений с динамическими зависимостями задач в среде десктоп грид с использованием Everest и Templet Web Востокин Сергей, Сухорослов Олег, Бобылева Ирина, Стефан Попов
16.45-17.00	Orthogonality-based classification of diagonal Latin squares of order 10 Eduard Vatutin, Vitaly Titov, Oleg Zaikin, Stepan Kochemazov, Maxim Manzyuk, Natalia Nikitina

**Scientific, industry and business applications in distributed computing systems, education  
Room 310**

14.30-14.45	Selection of rational composition of IT-services of information system with the purpose of increase of efficiency of transport logistics companies functioning Alexander Degtyarev, Gennady Dik, <u>Alexander Dik</u>
14.45-15.00	Usage of the distributed computing system in the recovery of the spectral density of sea waves BUSKO Ilya
15.00-15.15	Scalable semantic virtual machine framework for language-agnostic static analysis Maxim Menshchikov
15.15-15.30	.NET Core technology in scientific tasks DOROKHIN Victor
<b>15.30-16.00</b>	<b>Coffee</b>
16.00-16.15	Essential aspects of IT training technology for processing, storage and intellectual analysis of the big data using the virtual computer lab Evgenia Cheremisina, <u>Mikhail Belov</u> , Nadezhda Tokareva, Yury Kryukov
16.15-16.30	NRV web knowledge base: scientific and educational applications Aleksandr Alekseev, Alexander Karpov, Andrey Denikin, Mikhail Naumenko, Viacheslav Samarin, <u>Vladimir Rachkov</u> , Vyacheslav Saiko
16.30-16.45	Using extended reality technologies in distributed computer systems Nadezhda Vozdvizhenskaya

## Tuesday 11 September, 2018, LIT Conference Hall

### Plenary

9.00-9.30	The CMS Tier1 at JINR: five years of operations Baginyan A.S., Balandin A.I., Belov S.D., Dolbilov A.G., Golunov A.O., Gromova N.I., Kadochnikov I.S., Kashunin I.A., Korenkov V.V., Mitsyn V.V., Pelevanyuk I.S., Shmatov S.V., <u>STRIZH T.A.</u> , Trofimov V.V., Voitishin N.N., Zhiltsov V.E.
9.30-10.00	PIK Computing Centre KIRYANOV Andrey
10.00-10.30	Big data as the future of information technology <u>BOGDANOV Alexander</u> , DEGTYAREV Alexander, KORKHOV Vladimir, KYAW Thurein
10.30-11.00	CRIC: the information system for LHC Distributed Computing ANISENKOV Alexey
<b>11.00-11.20</b>	<b>Coffee</b>
11.20-11.50	Large scale simulations with parallel annealing algorithm SHCHUR Lev
11.50-12.20	RUNNet: infrastructural and service basis of the national research and education network of the Russian Federation <u>ABRAMOV Alexey</u> , EVSEEV Anton
12.20-12.50	The ATLAS EventIndex and its evolution based on Apache Kudu storage BARBERIS Dario
12.50-13.10	Supercomputer "GOVORUN" — new prospects for heterogeneous computations at JINR ADAM Gheorgy, KORENKOV Vladimir, <u>PODGAINY Dmitry</u> , <u>STRELTSOVA Oksana</u>
13.10-13.30	New Intel architecture and technologies for HPC and Cloud MESTER Nikolay (Intel)
<b>13.30-14.30</b>	<b>Lunch</b>

## High performance computing, CPU architectures, GPU, FPGA Conference Hall

14.30-14.45	GOVORUN supercomputer engineering infrastructure. Monitoring system of engineering infrastructure <u>VORONTSOV Alexey</u> , DOLBILOV Andrey, PODGAINY Dmitry, STRELTSOVA Oksana, KORENKOV Vladimir, STRIZH Tatiana
14.45-15.00	Network Infrastructure of heterogeneous platform “HybriLIT” <u>BELYAKOV D.V.</u> , BUTENKO Yu.A., DOLBILOV A.G., MATVEEV M.A., MOISEEV V.I., VALA M.
15.00-15.15	Information-software environment for the GOVORUN supercomputer TOROSYAN Shushanik, STRELTSOVA Oksana, PODGAINY Dmitry, VALA Martin, KIRAKOSYAN Margarit
15.15-15.30	RSC BasIS Platform - micro-agent platform to manage computer clusters LAVRENKO Pavel, MALKOV Mikhail
15.30-15.45	Storage-on-demand: storage and compute united. RSC Tornado hyper-converged solution for data processing LAVRENKO Pavel
15.45-16.00	HybriLIT monitoring system VALA Martin, KASHUNIN Ivan, BUTENKO Yurii, BELYAKOV Dmitry
<b>16.00-16.30</b>	<b>Coffee</b>
16.30-16.45	SALSA — Scalable Adaptive Large Structures Analysis VALA Martin, BUTENKO Yurii, BEKE Branislav, MATEJ Fedor
16.45-17.00	Merging multidimensional histograms via hypercube algorithm VALA Martin, <u>BULATOV Andrey</u> , BUTENKO Yurii
17.00-17.15	Distributed virtual cluster management system Amissi Cubahiro, <u>Vladimir GAIDUCHOK</u> , Magdalyne Kamande, Vladimir Korkhov, Alexander Degtyarev
17.15-17.30	Контекстная графическая среда пространственной визуализации результатов вычислительных экспериментов в механике сплошных сред Василий Храмушин
17.30-17.45	О согласовании вычислительного эксперимента при интерактивном моделировании гидромеханики корабля в штормовом море <u>Василий ХРАМУШИН</u> , Александр Дегтярев, Александр Богданов, Иван Ганкевич
17.45-18.00	Библиотеки и пакеты прикладных программ, доступные пользователям ЭВМ ОИЯИ Попкова Л.В., А.П. Сапожников, <u>Т.Ф. САПОЖНИКОВА</u>

**Operation, Monitoring, Optimization in Distributed Computing Systems**  
**Room 406B**

14.30-14.45	Разработка перспективной системы сбора данных на основе TRB-3 Александр Курепин, Андрей Кондратьев, Константин Сказыткин, Николай Курепин
14.45-15.00	Mechanisms for ensuring the integrity of information in distributed computing systems in the long-term period of time A.S. Minzov, A.Y. Nevskii, O.R. Baronov
15.00-15.15	Trigger information data flow for the ATLAS EventIndex Fedor Prokoshin, Mikhail Mineev
15.15-15.30	Improving Networking Performance of a Linux Node Alexander Bogdanov, Nabil Ahmed, Vladimir Gaiduchok
15.30-15.45	Application of unified monitoring system in LHAASO Haibo Li, Qingbao Hu, Qiulan Huang, Wei Zheng, Xiaowei Jiang
15.45-16.00	Development of JINR Tier-1 service monitoring system Igor Pelevanyuk, Ivan Kadochnikov, Tatiana Strizh, Valery Mitsyn, Vladimir Korenkov
<b>16.00-16.30</b>	<b>Coffee</b>
16.30-16.45	The BigPanDA monitoring system architecture Aleksandr Alekseev, Alexei Klimentov, Siarhei Padolski, Tatiana Korchuganova, Torre Wenaus
16.45-17.00	The BigPanDA self-monitoring alarm system for ATLAS Aleksandr Alekseev, Siarhei Padolski, Tatiana Korchuganova
17.00-17.15	Search for Anomalies in the Computational Jobs of the ATLAS Experiment with the Application of Visual Analytics Alexei Klimentov, I.E. Milman, M.A. Grigoryeva, Mikhail Titov, Tatiana Korchuganova, T.P. Galkin, Victor Pilyugin
17.15-17.30	BigData tools for the monitoring of the ATLAS EventIndex Andrei Kazymov, Evgeny Alexandrov, Fedor Prokoshin
17.30-17.45	Tier-1 centre at NRC “Kurchatov institute” between LHC Run2 and Run3 TKACHENKO Igor, RYABINKIN Eygene, ROGOVSKIY Alexander, LYALIN Ilya
17.45-18.00	Performance measurements for the WLCG Cost Model Victoria Matskovskaya

**Scientific, industry and business applications in distributed computing systems, education**

**Room 310**

14.30-14.45	Enabling Biology, Chemistry and Other Sciences on Titan through BigPanDA <u>Alexei Klimentov</u> , Kaushik De, Danila Oleynik, Ruslan Mashinistov, Pavlo Svirin, Jack Wells, Sergey Panitkin
14.45-15.00	Cache-friendly memory traversal to improve performance of grid-characteristic method <u>Andrey Ivanov, Nikolay Khokhlov</u>
15.00-15.15	Molecular dynamic simulation of water vapor interaction with various types of pores using hybrid computing structures Eduard Nikonov, Vladimir Korenkov, Maria Popovicova
15.15-15.30	The interoperability problem during the implementation of the FOURTH PARADIGM Alexander Oleynikov, Andrey Kamenshchikov
15.30-15.45	MODERN E - INFRASTRUCTURE FOR SCIENCE AND EDUCATION IN MOLDOVA BASED ON THE RENAM-GEANT PLATFORM <u>Grigore Secieru</u> , Peter Bogatencov, Nicolai Iliuh, Nichita Degteariov
15.45-16.00	Architecture and basic principles of the multifunctional platform for plant disease detection <u>Alexander Uzhinskiy</u> , Pavel Goncharov, Gennady Ososkov, Andrey Nechaevskiy
<b>16.00-16.30</b>	<b>Coffee</b>
16.00-16.15	Имитационная модель БРЛК с синтезированной апертурой антенны в сети распределенных вычислений MarGrid Владимир Безродный, Анатолий Леухин, Андрей Воронин
16.15-16.30	Разработка децентрализованной платежной системы на основе технологии blockchain с учетом специфики мобильных платформ <u>А. Илюхин</u> , Э. Никонов
16.30-16.45	О методах и технологиях интеллектуального энергосбережения в коммерческих зданиях Евгений Щетинин, Евгения Попова
16.45-18.00	NIAGARA & IBM - POWER9: Новая архитектура, новые возможности, особенности схемотехники, примеры использования. Перевозчиков Алексей, Максимов Евгений



**Databases, Distributed Storage systems, Datalakes  
Room 406A**

14.30-14.45	Geometry Database for the CBM experiment and its first application to experiments in the NICA project Elena Akishina, Evgeny Alexandrov, Igor Alexandrov, <u>Irina Filozova</u> , Volker Friese, Victor Ivanov, Oleg Rogachevskiy, Konstantin Gertsenberger
14.45-15.00	Новый вероятностно-статистический подход расчета информационных потерь в распределенных системах хранения и обработки данных физических экспериментов Андрей Нечаевский, Геннадий Ососков, <u>Дарья Пряхина</u> , Владимир Трофимов
15.00-15.15	WLCG data lake prototype for HL-LHC <u>Ivan Kadochnikov</u> , Ian Bird, Gavin McCance, Jaroslava Schovancova, Maria Girone, Simone Campana, Xavier Espinal Currul
15.15-15.30	A new approach to the development of provenance metadata management systems for large scientific experiments <u>Andrey Demichev</u> , Alexander Kryukov
15.30-15.45	NRC "KI" participation in DataLake project Andrey Kiryanov, Andrey Zarochentsev
15.45-16.00	Integrating LEAF to data management workflow in LHAASO <u>Haibo Li</u> , Yaodong Cheng, Qi XU, Qiulan Huang
<b>16.00-16.30</b>	<b>Coffee</b>
16.30-16.45	Data Knowledge Base for the ATLAS collaboration Golosova M., Grigorieva M.
16.45-17.00	A distributed data warehouse system for astroparticle physics Minh Duc Nguyen, Alexander Kryukov
17.00-17.15	Problems of date and time data types in relational model of data Vladimir Dimitrov

## Wednesday 12 September, 2018, LIT Conference Hall

### Plenary

9.00-9.30	ОРГАНИЗАЦИЯ ДОСТУПА К ЭКСПЕРИМЕНТАЛЬНЫМ ДАННЫМ УСТАНОВКИ ИТЭР В РЕЖИМЕ УДАЛЕННОЙ ПУЛЬТОВОЙ Екатерина Миронова, Игорь Семенов, Олег Семенов, Сергей Портоне
9.30-10.00	Multicomponent cluster management system for the computing center at IHEP Anna KOTLIAR, Ekaterina POPOVA, Victoria EZHOVA, Viktor KOTLIAR
10.00-10.20	Sponsor's talks: NIAGARA
10.20-10.40	Вычислительные системы Cisco Евгений Лагунцов
10.40-11.00	Интернет вещей и промышленное производство Милых Валерий
11.00-11.20	Технологии NVIDIA в инфраструктурах виртуальных рабочих столов Галкин Дмитрий
11.20-11.40	Кинетическая инфраструктура Степанов Никита
11.40-12.00	RSC TORNADO - hyper-converged and energy-efficient supercomputing solution. MOSKOVSKY Alexander
13.00	<b>Boat and Picnic Party</b>

## Thursday 13 September, 2018, LIT Conference Hall

### Plenary

9.00-9.30	NICA Computing ROGACHEVSKY Oleg
9.30-10.00	BigPanDA Experience on Titan for the ATLAS Experiment at the LHC KLIMENTOV Alexei, DE Kaushik, OLEYNIK Danila, MASHINISTOV Ruslan, WELLS Jack
10.00-10.30	DIRAC services for scientific communities TSAREGORODTSEV Andrei
10.30-11.00	Real-time event reconstruction and analysis in the CBM experiment at FAIR using HPC KISEL Ivan (for the CBM collaboration)
<b>11.00-11.30</b>	<b>Coffee</b>
11.30-12.00	Deep machine learning and pattern/face recognition based on quantum neural networks and quantum genetic algorithm ULYANOV Sergey V., RESHETNIKOV Andrey, RYABOV Nikita
12.00-12.30	Virtual testbed for naval hydrodynamic problems Alexander Degtyarev, Yury Pylnev, Anatoly Eibozhenko, Alexander Bogdanov, Vladimir Korkhov, Ivan Gankevich
12.30-13.00	Advanced global network services to support research excellence VOHNOUT Rudolf, CAPONE Vincenzo
<b>13.00-14.30</b>	<b>Lunch</b>

## High performance computing, CPU architectures, GPU, FPGA Conference Hall

14.30-14.45	On porting of applications to new heterogeneous systems <u>Alexander Bogdanov</u> , Vladimir Mareev, Nikita Storublevtzev, Denis Manyashin
14.45-15.00	Algorithms for the calculation of nonlinear processes on hybrid architecture clusters <u>Alexander Bogdanov</u> , Vladimir Mareev, Nikita Storublevtzev
15.00-15.15	Optimization problem for the heat equation towards an improvement of the "temperature valves" characteristics <u>Alexander Ayriyan</u> , Jan Busa Jr., Eugeny E. Donets, Hovik Grigorian
15.15-15.30	Real-time visualization of ship and wavy surface motions based on GPGPU computations <u>Anton Gavrikov</u> , Andrei Ivashchenko, Ivan Gankevich, Nataliia Kulabukhova, Alexander Bogdanov, Alexander Degtyarev, Vladimir Rukovchuk
15.30-15.45	GPGPU implementation of Schrodinger's Smoke for Unity3D <u>Oleg Iakushkin</u> , <u>Anastasia Iashnikova</u> , Olga Sedova
15.45-16.00	Accelerating real-time ship motion simulations using general purpose GPU computations <u>Ivan Petriakov</u> , Ivan Gankevich, Alexander Degtyarev, Vladimir Korkhov
<b>16.00-16.30</b>	<b>Coffee</b>
16.30-16.45	The Usage of HPC Systems for Simulation of Dynamic Earthquake Process Yulia Golubeva, <u>Vasily Golubev</u>
16.45-17.00	Different Approaches for Elastic Imaging using Multiprocessor Computing Systems <u>Vasily Golubev</u> , Alena Favorskaya
17.00-17.15	A software package for studying the system of long Josephson junctions on hybrid computing architectures Bashashin M.V., Erofeeva K.S., Streltsova O.I., Zemlyanaya E.V., <u>Zuev M.I.</u>
17.15-17.30	OpenFOAM wave modelling optimization with heterogeneous systems application porting Nikita Nizovtsov, Alexander Degtyarev
17.30-17.45	Ways to improve the productivity of fire simulation tools on modern equipment Victor Smirnov
17.45-18.00	Comparison of Python 3 Single-GPU Parallelization Technologies on Example of Charged Particles Dynamics Simulation Problem <u>Boytssov A.</u> , Bulychev A., Kadochnikov I., Zolotuhin Ya., Zuev M.

## Cloud computing, Virtualization

### Room - 310

14.30-15.00	Experiments with JupyterHub at the Saint Petersburg State University <u>Andrey EROKHIN</u> , <u>Andrey ZAROCHENTSEV</u>
15.00-15.15	Approaches to the automated deployment of the cloud infrastructure of geographically distributed data centers <u>P.V. FEDCHENKOV</u> , N.Y. Samokhin, S.E. Khoruzhnikov, O.I. Lazo, A.Y. Shevel
15.15-15.30	Kubernetes testbed cluster for the Lightweight Sites project GAVRILENKO Iuliia
15.30-15.45	Cloud Meta-Scheduler for Dynamic VM Reallocation BALASHOV Nikita
15.45-16.00	Design and implementation of a service for performing HPC computations in cloud environment <u>Ruslan KUCHUMOV</u> , Vladimir Korkhov
<b>16.00-16.30</b>	<b>Coffee</b>
16.30-16.45	About some block chain problems Alexander Bogdanov, Alexander Degtyarev, Magdalyne Kamande, Oleg Iakushkin, Vladimir Korkhov
16.45-17.00	New features of the JINR cloud <u>Nikolay Kutovskiy</u> , Nikita Balashov, Alexandr Baranov, Yelena Mazhitova, Roman Semenov
17.00-17.15	THE SERVICE FOR PARALLEL APPLICATIONS BASED ON THE JINR CLOUD AND HYBRILIT RESOURCES Elena Zemlyanaya, Pavel Goncharov, Andrey Nechaevskiy, Ruslan Kuchumov, Oksana Streltsova, Nikolay Kutovskiy, Maksim Bashashin, Nikita Balashov, Gennady Ososkov, <u>Ivan Sokolov</u>
17.15-17.30	Creation of cloud infrastructure of INP'S Astana branch - private establishment «NULITS» and its integration with the distributed JINR cloud infrastructure Boris Potapchuk, <u>Mikhail Mazhitov</u> , Sergey Belov, Yelena Mazhitova
17.30-17.45	Clouds of JINR, University of Sofia and INRNE - current state of the project Hristov Svetoslav, Kouzma Kouzmov, Nikita Balashov, Nikolay Kutovskiy, Radoslava Hristova, <u>Vladimir Dimitrov</u> , Vladimir Korenkov
17.45-18.00	Improving the load of supercomputers based on job migration using container virtualization Stanislav Polyakov
18.00-18.15	Исследование особенностей Интернет-трафика в магистральном канале ИВАНОВ Виктор, ЗРЕЛОВ Петр, КРЮКОВ Юрий, <u>ТАТАРИНОВ Иван</u> , ИВАНОВ Валерий

## Big data Analytics, Machine learning Room 406A

14.30-14.45	Text segmentation on photorealistic images <u>Valery Grishkin</u> , Aleksaner Ebral, Nikolai Stepenko, Jean Sene
14.45-15.00	Deep Learning Methodology for Prediction of Long-Term Dynamics of Financial Derivatives <u>Alexander Bogdanov</u> , Vladimir Rukovchuk, Kirill Lysov
15.00-15.15	Russian-language speech recognition system based on DeepSpeech Oleg Iakushkin, George Fedoseev, <u>A. Shaleva</u> , Olga Sedova, Alexander Degtyarev
15.15-15.30	Texture generation for archaeological reconstructions Oleg Iakushkin, Anna Fatkina, <u>Dmitry Selivanov</u> , Alexander Degtyarev
15.30-15.45	Machine learning for natural language processing tasks <u>Aleksey Kulnevich</u> , Vladislav Radishevskiy
15.45-16.00	Building corpora of transcribed speech from open access sources Oleg Iakushkin, George. Fedoseev, <u>Anna Shaleva</u>
<b>16.00-16.30</b>	<b>Coffee</b>
16.30-16.45	Particle identification in ground-based gamma-ray astronomy using convolutional neural networks <u>Evgeny Postnikov</u> , Alexander Kryukov, Stanislav Polyakov, Dmitry Shipilov, Dmitriy Zhurov
16.45-17.00	Botnet in PyPy to speed up the work of the Earley parser <u>Vladislav Radishevskiy</u> , Aleksey Kulnevich, Nikolai Stepenko, Jean Sene
17.00-17.15	Using TensorFlow to solve the problems of financial forecasting for high-frequency trading Alexey Stankus
17.15-17.30	Comparison of explicit and not explicit mathematical methods of financial forecasting Alexey Stankus
17.30-17.45	Combining satellite imagery and machine learning to predict atmospheric heavy metal contamination Alexander Uzhinskiy, Gennady Ososkov, Pavel Goncharov, Marina Frontsyeva
17.45-18.00	Сверточная нейронная сеть в системе стереозрения мобильного робота Сергей Ульянов, <u>Кирилл Кошелев</u>
18.00-18.15	Comparison of different convolution neural network architectures for the solution of the problem of emotion recognition by facial expression <u>Anton Vorontsov</u> ,a, Alexey Averkin
18.15-18.30	Time Series and Data Analysis Based on Hybrid models of Deep Neural Networks and Neuro-Fuzzy Networks Sergey Yarushev, Alexey Averkin

**Middleware and services for production-quality infrastructure  
Room 406B**

14.30-14.45	Creating tools to assist in development of CMS software George Adamov
14.45-15.00	New methods of minimizing the errors in the software Elizaveta Dorenskaya
15.00-15.15	CURRENT WORKFLOW EXECUTION USING JOB SCHEDULING FOR THE NICA EXPERIMENTS Konstantin Gertsenberger, Oleg Rogachevsky
15.15-15.30	The ATLAS Production System Predictive Analytics service: an approach for intelligent task analysis Alexei Klimentov, Dmitry Golubkov, Mikhail Borodin, <u>Mikhail Titov</u>
15.30-15.45	Event building from free streaming data at the CBM Ivan Korolko, <u>Mikhail Prokudin</u>
15.45-16.00	Experience with ITEP-FRRC HPC facility <u>Ivan Korolko</u> , Mikhail Prokudin, Victor Kolosov
<b>16.00-16.30</b>	<b>Coffee</b>
16.30-16.45	DDS – The Dynamic Deployment System Anar Manafov, <u>Andrey Lebedev</u>
16.45-17.00	The concept of proactive protection in a distributed computing system Anatoly Minzov, <u>Pavel Osipov</u>
17.00-17.15	COMPASS Production System: Processing on HPC Artem Petrosyan
17.15-17.30	Participation of Russian institutions in the processing and storage of ALICE data Andrey Zarochentsev

## Friday 14 September, 2018, LIT Conference Hall

### Plenary

10.00-10.30	Electronic, Dynamical and Thermodynamic Properties of DNA LAKHNO Victor
10.30-11.00	THE designing of cloud infrastructure consisting of geographically distributed data centers P.V. Fedchenkov, N.Y. Samokhin, S.E. Khoruzhnikov, O.I. Lazo, <u>A.Y. Shevel</u>
10.30-11.00	
<b>11.00-11.30</b>	<b>Coffee</b>
13.00	<b>CLOUSING</b>



**Technologies, Architectures, Models of Distributed Computing Systems**  
**Conference Hall**

11.30-11.45	Грид и облачная инфраструктура дата-центра Института Физики НАН Азербайджана Алексей Бондяков
11.45-12.00	INP BSU grid site Vladimir Mossolov, Dmitry Yermak, <u>Vitaly YERMOLCHYK</u>
12.00-12.15	The distributed grid site of Institute of Physics <u>Alexandr MIKULA</u> , Martin Adam, Jiri Chudoba, Dagmar Adamova, Jana Uhlirova, Petr Horak, Petr Vokac
12.15-12.30	ALICE DCS preparation for Run 3 <u>Alexander Kurepin</u> , Andre Augustinus, Peter Chochula, Ombretta Pinazza, Mateusz Lechman, Peter Matthew Bond, Kevin Cifuentes Salas, John Larry Lang
12.30-12.45	Properties of The Parallel Discrete Event Simulation Algorithms on Small-World Communication Networks <u>Liliia Ziganurova</u> , Lev Shchur

## Bioinformatics

Room – 310

11.30-11.45	Direct Simulation of the Charge Transfer along Oligonucleotides at T=300K <u>Nadezhda Fialko</u> , Victor Lakhno
11.45-12.00	Data consolidation and analysis system for brain research <u>Vladimir Korkhov</u> , Alexander Bogdanov, Vladislav Volosnikov, Andrey Vorontsov, Natalia Zalutskaya, Kirill Gribkov, Nikolay Neznanov, Natalia Ananyeva, Alexander Degtyarev
12.00-12.15	Development of software for face retrieval systems modeling <u>Nadezhda Shchegoleva</u> , <u>Varvara Petrova</u>
12.15-12.30	Хаотическая динамика мгновенного сердечного ритма и его фазовое пространство <u>Виктор Цветков</u> , Алексей Кудинов, Александр Иванов, Илья Цветков, Сергей Михеев
12.30-12.45	Визуализация квантового фазового пространства мгновенного сердечного ритма Илья Цветков, <u>Виктор Цветков</u> , Сергей Михеев

**Consolidation and integration of distributed resources**  
**Room – 406A**

11.30-11.45	Current status of data center for cosmic rays based on KCDC Dmitriy Kostunin, <u>Victoria Tokareva</u>
12.00-12.15	DIRAC at JINR — purpose, experience, future <u>Igor Pelevanyuk</u> , Andrei Tsaregorodtsev
12.15-12.30	Discrete and Global Optimization in Everest Distributed Environment by Loosely Coupled Branch-and-Bound Solvers <u>Vladimir Voloshinov</u> , Sergey Smirnov

## Posters

Numerical solution of diffraction problem on the joint of two open three-layered waveguides	Veniamin Chupritskiy, Dmitriy Divakov
An Image Verification Framework Development	Ahmed Elaraby, Andrey Nechaevskiy
Efficiency measurement system for the computing cluster at IHEP	Victoria Ezhova, Viktor Kotliar
Combined Explicit-Implicit Taylor Series Methods	I. Hristov, Z. Tukhliev, S. Dimova, R. Hristova, I. Puzynin, T. Puzynina, N. Shegunov, Z. Sharipov
Data gathering and wrangling for the monitoring of the Russian labour market	Javad Javadzade
Application of Hubzero platform for the educational process in astroparticle physics	Yuliya Kazarina, Oleg Fedorov, Andrey Mikhailov, Igor Bychkov, Andreas Haungs, Alexander Kryukov, Dmitriy Kostunin, Alexey Shigarov, Dmitriy Shipilov, Daria Chernykh
Event-Driven Automation and chat-ops on IHEP computing cluster	Anna Kotliar, Viktor Kotliara
Using binary file format description languages for verifying raw data in astroparticle physics experiments	Alexander Kryukov, Elena Korosteleva, Dmitriy Kostunin, Igor Bychkov, Alexey Khmelnov, Andrey Mikhailov, Oleg Fedorov, Alexey Shigarov
Pseudo-random number generator based on neural network	Dmitry Kulyabov, Anna Korolkova, Migran Gevorkyan, Anastasiya Demidova
Methods & tools of the RSC BasIS distributed micro agent platform for managing compute, network and storage resources to efficiently process data	Mikhail Malkov
Modern hyper-converged platform for computational- and I/O-heavy environments	Mikhail Malkov
Modernization of web service for the data center simulation program	Dmitry Marov, Daria Priakhina
Parallel calculations of ground states of 6,7,9,11Li nuclei by Feynman's continual integrals method	Mikhail Naumenko, Viacheslav Samarin
ANALYSIS OF THE FEATURES OF THE OPTIMAL	Elena Nurmatova,

LOGICAL STRUCTURE OF DISTRIBUTED DATABASES	Victor Gusev, Viktor Kotliar
Using multivariate quantile function for solving bioinformatics problems	Sergey Poluyan, Nikolay Ershov
A way of anomaly detection in engineering equipment characteristics of Symmetra at IHEP IT center	Ekaterina Popova, Viktor Kotliar
Sensitivity Analysis in a problem of ReaxFF molecular-dynamic force field optimization	Konstantin Shefov, Stepanova Margarita
Optimisation of TensorFlow applications on the workstation Intel® Xeon® Platinum	Svetlana Shikota, Lev Shchur, Alexander Russkov
Scalability of the Parallel Strongin Algorithm in the Problem of Optimizing a Molecular-Dynamic Force Field	Margarita Stepanova, Konstantin Shefov
Convolutional neural networks for self-driving cars on GPU	Boris Tyulkin, Nataliia Kulabukhova
Possible application areas of machine learning techniques at MPD/NICA experiment and their implementation prospects in distributed computing environment	Dmitry Zinchenko, Alexander Zinchenko, Eduard Nikonov
Применение эволюционных и роевых алгоритмов оптимизации для решения модельной задачи предсказания структуры белка	Максим Быстров, Николай Ершов
Анализ параллельной структуры популяционных алгоритмов оптимизации	Николай Ершов, Сергей Полуян
Применение сети Хопфилда для автоматизированной подборки КПЭ	Денис Кравченко, Эдуард Никонов
Когнитивно-интеллектуальная система адаптации и обучения детей-аутистов	Алла Мамаева, Андрей Шевченко
Когнитивно-интеллектуальная система диагностики, адаптации и обучения детей-аутистов. Модуль обработки данных	Андрей Шевченко, Алла Мамаева
The problem of symbolic-numeric computation of the eigenvalues and eigenfunctions of the leaky modes in a regular homogeneous open waveguide	Andrey Drevitskiy, Dmitriy Divakov

## International school

“Scientific computing, Big data analytics and machine learning technology for megascience projects”

GRID 2018

# International school “Scientific computing, Big data analytics and machine learning technology for megascience projects” in frame of GRID’2018 ([grid2018.jinr.ru](http://grid2018.jinr.ru))



*The goal of the school* is to attract young scientists, students and postgraduate students to solve IT-tasks and challenges related to various aspects of megaprojects in the field of high-energy physics and to familiarize participants with modern methods of Big data analytics, machine learning and high-performance computing systems and to use this knowledge to solve IT tasks in the field of high-energy physics.

### *The main topics of the School are:*

- Big data by the example of the NICA megaproject and experiments at the Large Hadron Collider as the main source of big data in high-energy physics;
- Distributed systems for collecting, processing, managing and storing information;
- Use of high-performance systems (supercomputers, computing clusters) for data processing and modeling of physical experiments;
- Machine learning.