22 November, Thursday

08:30 – 9:30	Registration. Welcome coffee (The Green Hall – The Foyer)
09:30 – 11:30	Plenary session History of Continuous Innovation Participants represent Russian government, Russian academy of sciences, executives of research institutes, universities, leading Russian and international IT-companies, IEEE and IEEE Computer Society executives
11:30 – 13:30	Exhibition of technologies, coffee break
13:30 – 14:30	Lunch

Management of Data and Information Systems (The Beige Hall)

14:30 – 14:50	T. Ghukasyan, G. Davtyan, K. Avetisyan (System Programming Laboratory at Russian-Armenian University) and I. Andrianov (ISP RAS) pioNER: Datasets and Baselines for Armenian Named Entity Recognition
14:50 – 15:10	O. Borisenko (ISP RAS) and N. Lazarev (Lomonosov Moscow State University) Implementing JSON operations for In-memory Data Grid as pass-through cache layer to RDBMS
15:10 – 15:30	O. Borisenko and D. Badalyan (ISP RAS) Evaluation of SQL benchmark for distributed in-memory Database Management Systems
15:30 – 15:50	I. Alimova and E. Tutubalina (Kazan Federal University) Entity-level classification of adverse drug reactions: a comparison of neural network models
15:50 – 16:10	Coffee break
16:10 – 16:30	R. Canosa, A. Tchernykh, J. M. Cortés-Mendoza, R. Rivera-Rodriguez, J. Lozano Rizk, (CICESE Research Center) Z. Du (Tsinghua University), A. Avetisyan (ISPRAS) and E. Concepción-Morales (UMET) Energy consumption and quality of service optimization in containerized cloud computing
16:30 – 16:50	V. Malykh and T. Khakhulin (MIPT) Noise Robustness in Aspect Extraction Task
16:50 – 17:10	V. Malykh and V. Lyalin (MIPT) Named Entity Recognition in Noisy Domains
17:10 – 17:30	I. Bolodurina, D. Parfenov and K. Pivovarova (Federal State Budgetary Educational Institution of Higher Education «Orenburg State University») Development and research of models of time mixed-frequency data on an example of the analysis of productivity of grain crops
17:30 – 17:50	S. Habashi, C. Salama, A. H. Yousef and H. Fahmy (Ain Shams University) Adaptive Diversifying Hyper-Heuristic Based Approach for Timetabling Problems

Open source software for continuum mechanics problems (The Green Hall)

14:30 – 15:10	Prof. dr. L.R.M. (Leo) Maas (Utrecht University) Wave Attractors
15:10 – 15:30	Matthias Banholzer, Christoph Traxinger and Michael Pfitzner (Bundeswehr University Munich) Numerical investigation of phase separation effects under high-pressure, engine-like conditions
15:30 – 15:50	Arina Kryuchkova, Konstantin Koshelev and Sergei Strijhak (ISP RAS) Computation of flow parameters in model wind farm based on wind measurement data
15:50 – 16:10	Coffee break
16:10 – 16:30	Mikhail Levin (ISP RAS) Numerical Investigation of Two-Phase Flows Through Essentially Heterogeneous Porous Media by High-Order Quasi-Characteristics Scheme
16:30 – 16:50	Igor Kulikov, Igor Chernykh, Dmitry Karavaev, Viktor Protasov, Aleksandr Serenko, Vladimir Prigarin, Ivan Ulyanichev (Institute of Computational Mathematics and Mathematical Geophysics SB RAS) Alexander Tutukov (Institute of Astronomy RAS) Using adaptive nested mesh code HydroBox3D for numerical simulation of Type Ia supernovae: merger of carbon-oxygen white dwarf stars, collapse, and non-central explosion
16:50 – 17:10	Kirill Terekhov, Igor Konshin and Yuri Vassilevski (Marchuk Institute of Numerical Mathematics of the RAS) INMOST — a software platform for distributed mathematical modeling
17:10 – 17:30	Mikhail Zaitsev, Vasilij Goloviznin (NSI RAS), Sergey Karabasov (Queen Mary University of London) Implementation of CABARET method for polyhedral cells in OpenFOAM
17:30 – 17:50	Artem Kuvshinnikov and Alexander Bondarev (Keldysh Institute of Applied Mathematics) Comparative estimation of QGDFoam solver accuracy for inviscid flow around a cone

Technologies of program analysis, modeling and transformation (The Blue Hall)

14:30 – 14:50	Vladislav Ivanishin, Evgeny Kudryashov, Alexander Monakov and Dmitry Melnik (ISP RAS) Pruning ELF: Size Optimization of Dynamic Shared Objects at Post-link Time
14:50 – 15:10	Irina Dudina and Nikita Malyshev (ISP RAS) An approach to the C string analysis for buffer overflow detection
15:10 – 15:30	Vitaly Cheptsov and Alexey Khoroshilov (ISP RAS) Dynamic Analysis of ARINC-653 RTOS with LLVM
15:30 – 15:50	Grigoriy Volkov (NRU HSE), Mikhail Mandrykin (ISP RAS) and Denis Efremov (NRU HSE) Lemma Functions for Frama-C: C Programs as Proofs
15:50 – 16:10	Coffee break
16:10 – 16:30	E.M. Lavrischeva (ISP RAS) Informatics and Computer-70. Analysis and development aspects
16:30 – 16:50	A.V. Kozachok (Academy of the Federal Guard Service) TLA + based access control model specification

16:50 – 17:10	Nikolay Shilov (Innopolis University), Igor Anureev, Evgeny Bodin, Dmitry Kondratyev and Alexei Promsky (A.P. Ershov Institute of Informatics Systems) Towards platform-independent specification and verification of the standard mathematical functions

22 November 11:30-13:30, Exhibition of technologies (The Green Hall – The Foyer)

1	Svace is an essential tool of the secure software development life cycle, the main static analyzer that is used in Samsung Corp. It detects more than 50 critical error types. Svace supports C, C++, C#, and Java. Svace is registered in the National Software Unified Register, which is kept by the Ministry of Digital Development.
2	BINSIDE is a tool for detecting flaws in a program using static analysis of executable code.
3	Anxiety is a framework for detecting errors and potentially dangerous cases in the process of development, acceptance testing and operating the software.
4	Binary code analysis platform based on QEMU emulator. The ISP RAS platform for program analysis is built on the basis of an open QEMU emulator, which is used when crossplatform development is needed.
5	ISP Obfuscator is a set of technologies to prevent mass exploitation of vulnerabilities resulting from errors or bookmarks. If the hacker is able to attack one of the devices with the common software, the rest will remain protected by changes made to the code.
6	Protosphere is a system of deep packet inspection (DPI). It is the part of intrusions and information leaks protection. Detects inconsistencies between protocol specification and specific implementation. Allows you to quickly add support for new (including closed) protocols due to the flexibility of the internal representation.
7	Klever is a static verification system that uses advanced tools to thoroughly check the security, reliability and performance of software systems developed in the GNU C language. In particular, it is used to verify the real-time OS.
8	MicroTESK is a reconfigurable and expandable test program generation environment for functional microprocessors verification. It allows automatically constructing test program generators for target microprocessor architectures based on their formal specifications. MicroTESK is applicable for a wide range of architectures (RISC, CISC, VLIW, DSP).
9	Retrascope is a tool for reverse engineering and functional verification of digital equipment descriptions. It provides automated tools for extracting and analyzing formal source code models. The tool supports synthesized subsets of Verilog and VHDL languages.
10	AstraVer Toolset is a system for deductive verification of key components. It allows developing and verifying security policy models, as well as providing evidence of the correctness of key components in C language. The necessary tool to achieve the goals of the ADV_SPM and ADV_FSP trust families defined in GOST R ISO / IEC 15408-3-2013.
11	MASIW is a set of tools for developing software and hardware packages for mission-critical systems in the field of aviation, medicine, and others. It is created for design engineers of aircraft on-board equipment developed using integrated modular avionics (IMA). It quickly adapts to other subject areas.
12	Constructivity 4D is a technology for creating ambitious software systems and services operating with large arrays of spatio-temporal data and dynamic scenes. It is able to conduct a visual analysis of millions of objects with different geometric representations and individual dynamic behavior. The technology is implemented in the Synchro system, designed for 4D-modeling of large industrial sites.
13	Texterra is a scalable platform for extracting semantics from text. It is the basic set of technologies for creating multifunctional applications. It analyzes texts using concept identification. It is included in the Unified Register of Russian software.

14	Talisman – big data processing solution for social and commercial information retrieval. It recognizes patterns in relationships by analyzing large graphs from hundreds of millions of nodes.
15	Lingvodoc is a system intended for collaborative multi-user documentation of endangered languages, creating multi-layered dictionaries and performing scientific work with the received sound and text data. Joint project with the Institute of Linguistics of the Russian Academy of Sciences and Tomsk State University. Under development since 2012. Project website – lingvodoc.ispras.ru.
16	SciNoon is a system for researcher's inquiry of scientific articles. Combines a number of unique features to optimize the process of searching and analyzing the results. It particularly allows you to work in a team and keep a history of user actions. Can work with big data.
17	Complex of solutions for creating service-oriented data processing center provides the ability to store data and perform complex, resource-intensive calculations using both containers and virtual machines. It is particularly intended for the deployment of cloud environments.

23 November, Friday

09:30 – 10:00	Registration. Welcome coffee (The Green Hall – The Foyer)

Blockchain Technology (The Beige Hall)

10:00 – 10:40	N. Pakulin (Pax Datatech, Seoul, South Korea) Challenges and advances of blockchain technologies
10:40 – 11:00	10:40 Evgeniy Shishkin (InfoTeCS) Verifying functional properties of smart contracts using symbolic model-checking
11:00 – 11:20	Chibuzor Udokwu, Aleksandr Kormiltsyn, Kondwani Thangalimodzi and Alex Norta (Tallinn University of Technology) The State of the Art for Blockchain-Enabled Smart-Contract Applications in the Organization
11:20 – 11:40	Coffee break
11:40 – 12:00	Alexandr Andryukhin (KCD LLC) Phishing Attacks and Preventions in Blockchain Based Projects
12:00 – 12:20	Andrey Demichev, Alexander Kryukov (Skobeltsyn Institute of Nuclear Physics, Lomonosov Moscow State University) and Nikolai Prikhod'ko (Yaroslav-the-Wise Novgorod State University) The Approach to Managing Provenance Metadata and Data Access Rights in Distributed Storage using the Hyperledger Blockchain Platform
12:20 – 12:40	Ilya Evdokimov (Dexpa LLC) Distributed Infrastructure for B2B Loyalty Programs on Top of the Tendermint Protocol
12:40 – 13:00	M. Levin (Pax Datatech) Tail chain — a new generation blockchain for parallel transaction processing

Open source software for continuum mechanics problems (The Green Hall)

10:00 – 10:40	Professor, Dr. Sci. (Phys.–Math.) Mikhail Panteleev (CTP PCP RAS, Lomonosov Moscow State University) To be announced

10:40 – 11:20	Corresponding Member of RAS, Professor, Dr. Sci. (Phys.-Math.) Yuri Vassilevski (Marchuk Institute of Numerical Mathematics RAS, Moscow Institute of Physics and Technology, Sechenov University) Personalized mathematical models of blood flows
11:20 – 11:40	Coffee break
11:40 – 12:00	Olga Sorokovikova, Dmitry Dzama and Danil Asfandiyarov(The Nuclear Safety Institute (IBRAE) Specialized robust CFD RANS microscale meteorological model for modelling atmospheric processes and contamination transport in urban and industrial areas
12:00 – 12:20	Andrey Epikhin (Bauman Moscow State Technical University) and Matvey Kraposhin (ISPRAS) Numerical simulation of acoustic perturbations induced by low-Reynolds jet flow
12:20 – 12:40	Eugene Morozov, Konstantin Belyaev (Shirshov Institute of Oceanology), Natalia Tuchkova and Guriy Mickailov (Dorodnicyn Computing Center FRC CSC RAS) Estimates of Mass Transport of the Antarctic Bottom Water with Earth System Model and Data Assimilation Technique
12:40 – 13:00	Andrey Ivantsov and Tatyana Lyubimova (Institute of continuous media mechanics UB RAS) Numerical simulations of liquid drop dynamics in porous medium using adaptive mesh
13:20 – 14:00	Lunch
14:00 – 14:20	Maxim Khomenko and Fikret Mirzade (ILIT RAS- Branch of the FSRC “Crystallography and Photonics” of RAS) Verification of hydrodynamic model of laser cladding based on OpenFOAM solver
14:20 – 14:40	Victor Zhukov, Nataliya Novikova and Olga Feodoritova (KIAM RAS) On numerical simulation of flows in scramjet combustor using OpenFOAM
14:40 – 15:00	Kirill Ovchinnikov (State Marine Technical University) Numerical simulation of motions of ship with moonpool in head waves
15:00 – 15:20	Victoria Korchagova (ISP RAS, BMSTU), Sofia Sautkina (BMSTU), Ivan Fufaev (KIAM RAS), Ilia Marchevsky (ISP RAS, BMSTU) and Vladimir Lukin (ISP RAS, BMSTU, KIAM RAS) On Efficient Implementation of Discontinuous Galerkin Method For Numerical Simulation of Two-Dimensional Gas Dynamic Flows on Unstructured Meshes
15:20 – 15:40	Olga Olkhovskaya, Gennadiy Bagdasarov, Vladimir Gasilov and Yulia Sharova (Keldysh Institute of Applied Mathematics) High performance computations for short-lived plasmas
15:40 – 16:00	Coffee break
16:00 – 16:20	Yuri Nechaev (ITMO University), Vladimir Osipov and Vladimir Sudakov (KIAM RAS) Dynamic NEURO-FUZZY model of traffic control of the transport stream
16:20 – 16:40	Vladimir Zenkin (BMSTU) Ontological CFD-repository
16:40 – 17:00	Thomas Raeder, Valentin Tenenev (Kalashnikov ISTU), Alena Chernova (Kalashnikov ISTU, JSC «INNTS») and Maria Koroleva (Kalashnikov ISTU, UdFRC UB RAS) Multilevel Simulation of Direct Operated Safety Valve
17:00 – 17:20	Stepan Rogozin (Petrozavodsk State University) and Evgeny Ivashko (Institute of Applied Mathematical Research KarRC RAS) The optimization of a residential wood log stove using the BOINC system
17:20 – 17:40	Artem Nuriev, Kazan Federal University (Kazan Federal University) Identification of the parameters of the aerodynamic influence on the beams performing resonance oscillations in air. Experiment and numerical simulation.

Technologies of program analysis, modeling and transformation (The Blue Hall)

10:00 – 10:20	Ivan Vasilev (Novgorod State University) OS-agnostic process' and thread' identification in virtual machine, to support selective instrumentation
10:20 – 10:40	Alexey Vishnyakov, Alexey Nurmukhametov, Shamil Kurmangaleev and Sergey Gaisaryan (ISP RAS) Method for analysis of code-reuse attacks
10:40 – 11:00	Alexei Hmelnov and Andrey Mikhailov (ISDCT SB RAS) Generation of code for reading data from the declarative file format specifications written in language FlexT
11:00 – 11:20	Vladislav Stepanov, Pavel Dovgalyuk and Dmitriy Poletaev (Yaroslav-the-Wise Novgorod State University) Tracing ext3 file system operations in the emulator QEMU
11:20 – 11:40	Coffee break
11:40 – 12:00	Sevak Sargsyan, Jivan Hakobyan, Matevos Mehrabyan, Seryozha Asryan (RUSSIAN — ARMENIAN UNIVERSITY) and Shamil Kurmangaleev (ISP RAS) Directed Fuzzing Based on Program dynamic Instrumentation
12:00 – 12:20	D.Kononov (ISP RAS) Executable code analysis approach based on software architecture recovery
12:20 – 12:40	A.V. Samonov and G.N. Samonova (Mozhaiskiy Military Space Academy) Methodology and Tools for Development and Verification of formal fUML Models of Requirements and Architecture for Complex Software and Hardware Systems
12:40 – 13:00	Hayk Aslanyan (ISP RAS) Platform for interprocedural static analysis of binary code
13:00 – 14:00	Lunch
14:00 – 14:20	Fedor Niskov, Andrey Fedotov and Shamil Kurmangaleev (ISP RAS) Crash processing for selection of unique defects
14:20 – 14:40	Sergey Kovalev (Positive Technologies) Reading the contents of deleted and modified files in virtualization based black-box binary analysis system Drakvuf
14:40 – 15:00	Ilja Zakharov and Evgeny Novikov (ISP RAS) Compositional Environment Modelling for Verification of GNU C Programs

23 November 11:20-13:20, Poster session (The Green Hall – The Foyer)

Poster 1	Tatiana Stenina (Lomonosov Moscow State University), Tatiana Elizarova (Keldysh Institute of Applied Mathematics of the RAS), Matvey Kraposhin (ISP RAS) and Daniil Ryazanov (Lomonosov Moscow State University) Numerical simulation of the heart disk pump using OpenFOAM open-source code platform
Poster 2	Stanislav Stashevskiy and Vladimir Zenkin (BMSTU) Determining the characteristics of the intake channels of reciprocating engines using OpenFOAM
Poster 3	Alexey Ryakhovskiy, Valery Antonov (SPbPU) and Alexander Schmidt (The Ioffe Institute) CFD and DSMC approaches to modeling MHD re-entry flow control in OpenFOAM
Poster 4	Kseniia Kuzmina, Ilia Marchevsky and Evgeniya Ryatina (BMSTU) On capabilities of the open-source code VM2D for modelling of two-dimensional viscid flows by vortex methods

Poster 5	Victoria Bondarchuk, Anastasia Gladkova and Andrew Popov (BMSTU) Usage of open-source codes for modelling of viscid incompressible flows by PFEM-2 method
Poster 6	Kirill Vatutin, Matvey Kraposhin (ISP RAS) and Sergey Dubinskiy (JSC VNIIZHT) Numerical simulation of train aerodynamics during entrance to the tunnel
Poster 7	Andrew Osipov (MIPT), Matvey Kraposhin, Sergey Strizhak (ISP RAS) and Yaroslav Sovetnikov (MAI) Identification of the gas dynamics parameters of shock wave formed during rocket lift-off
Poster 8	Valeriia Melnikova, Georgy Shcheglov (BMSTU) and Sergei Strijhak (ISP RAS) Capabilities of the open-source code Palabos for simulation of the flow past rotating bodies
Poster 9	Daniil Riazanov, Matvey Kraposhin (ISP RAS) and Eygene Ryabinkin (NRC Kurchatov Institute) OpenFOAM High Performance Computing Solver for Simulation of Internal Wave Attractors in Stratified Flows using Regularized Hydrodynamic Equations
Poster 10	Eugenia Zorina and Albina Gizzatullina (FSBEI HE «Kalashnikov Izhevsk State Technical University») Calculation of the resistance of the elliptical body with keel
Poster 11	Mariya Koroleva, Albina Gizzatullina, Evgeniya Zorina and Olga Mishchenkova (FSBEI HE «Kalashnikov Izhevsk State Technical University») Modeling the supersonic gas flow over a missile
Poster 12	Kirill Terekhov, Igor Konshin and Yuri Vassilevski (Marchuk Institute of Numerical Mathematics RAS) INMOST — a software platform for distributed mathematical modelling