

MONDAY, August 19

18:30 **Registration**

19:00 **PaCT-2019 WELCOME PARTY, Grand Hotel Tien Shan**

TUESDAY, August 20

8:00-9:00 Registration and Welcome Coffee

9:00-9:10 **OPENING SESSION**

9:10-10:40 **OVERTURE** **Chair: Giancarlo Mauri**

9:10-9:40 Participant-Restricted Consensus in Asynchronous Crash-prone Read/Write Systems and its Weakest Failure Detector
Carole Delporte, Hugues Fauconnier, Michel Raynal

9:40-10:10 Bitwise reproducibility and the relation to reproducible science
Thomas Ludwig

10:10-10:40 GPU implementation of the ConeTorre algorithm for fluid dynamics simulation
Anastasia Perepelkina, Vadim Levchenko, Andrey Zakirov

10:40-11:10 **COFFEE BREAK**

11:10-12:30 **DATA PROCESSING** **Chair: Victor Toporkov**

11:10-11:40 HaraliCU: GPU-Powered Haralick Feature Extraction on Medical Images Exploiting the Full Dynamics of Gray-scale Levels
Leonardo Rundo, Andrea Tangherloni, Simone Galimberti, Paolo Cazzaniga, Ramona Woitek, Evis Sala, Marco Nobile, Giancarlo Mauri

11:40-12:10 Parallelization of Data Mining Algorithms for Distributed Data in the Internet of Things
Ivan Kholod, Andrey Shorov, Maria Efimova, Sergei Gorlatch

12:10-12:30 **GENERAL ANNOUNCEMENTS AND PHOTO SESSION**

12:30-14:00 **LUNCH**

14:00-15:30 **SCHEDULING** **Chair: Sergei Gorlatch**

14:00-14:30 Preference Based And Fair Resources Selection in Grid VOs
Victor Toporkov, Dmitry Yemelyanov, Anna Toporkova

14:30-15:00 Improving the Accuracy of Energy Predictive Models for Multicore CPUs Using Additivity of Performance Monitoring Counters
Arsalan Shahid, Muhammad Fahad, Ravi Reddy Mamumachu, Alexey Lastovetsky

15:00-15:30 An Experimental Study of Data Transfer Strategies for Execution of Scientific Workflows
Oleg Sukhoroslov

15:30-16:00 **COFFEE BREAK**

16:00-17:30 **NUMERICAL SESSION I** **Chair: Victor Gergel**

16:00-16:30 A Comparison of MPI/OpenMP and Coarray Fortran for Digital Rock Physics Application

Galina Reshetova, Vladimir Cheverda, Tatyana Khachkova

16:30-17:00 Analysis of relationship between SIMD-processing features used in NVIDIA GPUs and NEC SX-Aurora TSUBASA vector processors

Ilya Afanasyev, Vadim Voevodin, Vladimir Voevodin, Kazuhiko Komatsu, Hiroaki Kobayashi

17:00-17:30 Computational issues in construction of 4-D projective spaces with perfect access patterns for higher primes

Shreeniwas N Sapre, Sachin B Patkar, Supratim Biswas

WEDNESDAY, August 21

9:00-10:30 **LANGUAGES AND ENVIRONMENTS** **Chair: Thomas Ludwig**

9:00-9:30 Compiler Generated Progress Estimation for OpenMP Programs

Peter Zangerl, Peter Thoman, Thomas Fahringer

9:30-10:00 Mathematical abstraction in a simple programming tool for parallel embedded systems

Fritz Mayer-Lindenberg

10:00-10:30 Objects of Alternative Set Theory in Set@l Programming Language

Ilya Levin, Alexey Dordopulo, Ivan Pisarenko, Andrey Melnikov

10:30-11:00 **POSTER SESSION & COFFEE BREAK**

- Performance and energy efficiency of algorithms used to analyze growing synchrotron measurements
Vladimir Berezovsky, Kirill Butin, Aleksandr Popov, Andrey Rodionov
- A Web-Based Platform for Interactive Parameter Study of Large-Scale Lattice Gas Automata
Maxim Gorodnichev, Yuri Medvedev
- Data-Parallel Computational Model for Next Generation Sequencing on Commodity Clusters
Majid Hajibaba, Mohsen Sharifi, Saeid Gorgin
- Multiple-Precision Scaled Vector Addition on Graphics Processing Unit
Konstantin Isupov, Alexander Kuvaev
- Dimensional Reduction Using Conditional Entropy for Incomplete Information Systems
Mustafa Mat Deris, Norhalina Senan, Zailani Abdullah, Rabiee Mamat, Bana Handaga
- CAPE: a Checkpointing-Based Solution for OpenMP on

Distributed-Memory Architectures

*Van Long Tran, **Éric Renault**, Viet Hai Ha*

- Affinity Replica Selection in Distributed Systems
***Wan Suryani Wan Awang**, Mustafa Mat Deris, Omer Rana, Zarina Mohamad, Ahmad Nazari Mohd Rose*

- Comparison of opportunity modularization in functional and imperative programming styles

Igor N. Skopin

11:00-12:30 **NUMERICAL II** **Chair: Darkhan Akhmed-Zaki**

11:00-11:30 HydroBox3D: parallel & distributed hydrodynamical code for numerical simulation of Supernova Ia

*Igor Kulikov, **Igor Chernykh**, Dmitry Karavaev, Evgeny Berendeev, Viktor Protasov*

11:30-12:00 Efficient Parallel Solvers for the FireStar3D Wildfire Numerical Simulation Model

*Oleg Bessonov, **Sofiane Meradji***

12:00-12:30 GPU-aware AMR on Octree-based grids

***Pavel Pavlukhin**, Igor Menshov*

12:30-14:00 **LUNCH**

14:00-15:30 **NUMERICAL III** **Chair: Alexey Lastovetsky**

14:00-14:30 Optimizing a GPU-parallelized Ant Colony Metaheuristic by Parameter Tuning

*Andrey Borisenko, **Sergei Gorlatch***

14:30-15:00 Scientific problems addressed with the help of Govorun cluster at LIT Joint Institute of Nuclear Research (Dubna)

Alexander Moskovsky

15:00-15:30 Parallel dimensionality reduction for multiextremal optimization problems

***Victor Gergel**, Vladimir Grishagin, Ruslan Israfilov*

15:30-16:00 **COFFEE BREAK**

16:00-17:30 **DISTRIBUTED ALGORITHMS** **Chair: Michel Raynal**

16:00-16:30 Capture on grids and tori with different numbers of cops

*Fabrizio Luccio, **Linda Pagli***

16:30-17:00 Blockchain-Based Delegation of Rights in Distributed Computing Environment

***Andrey Demichev**, Alexander Kryukov, Nikolai Prikhod'ko*

17:00-17:30 Does the Operational Model Capture Partition Tolerance in Distributed Systems?

***Grégoire Bonin**, Achour Mostéfaoui, Matthieu Perrin*

THURSDAY, August 22

SOCIAL DAY

Tour to the Big Almaty Lake and a Falcon Farm
Conference Dinner (scheduled for 19:00)

FRIDAY, August 23

9:00-10:30 **CELLULAR AUTOMATA** **Chair: Dominique Désérable**

9:00-9:30 Generating Domino Patterns by a Probabilistic Cellular Automata Rule
Rolf Hoffmann, Dominique Désérable, Franciszek Seredynski

9:30-10:00 Pseudorandom Number Generator based on Totalistic Cellular Automaton
Miroslaw Szaban

10:00-10:30 Synchronous Multi-particle Cellular Automaton Model of Diffusion with
Self-Annihilation
Karl Sabelfeld, Sergey Kireev, Anastasiya Kireeva

10:30-11:00 **COFFEE BREAK**

11:00-12:30 **GRAND FINALE** **Chair: Victor Malyshkin**

11:00-11:25 An Adaptive Bully Algorithm for Leader Elections in Distributed Systems
Monir Abdullah, Ibrahim Al-Kohali, Mohamed Othman

11:25-11:50 Quantum Computing and its Prospect for Classical CFD
Peyman Givi

11:50-12:15 LuNA-ICLU compiler for automated generation of parallel programs
implementing iterative fragmented algorithms
Nikolay Belyaev, Sergey Kireev

12:15-12:40 Automated Construction of High Performance Distributed Programs in
LuNA System
*Darkhan Akhmed-Zaki, Danil Lebedev, Victor Malyshkin, Vladislav
Perepelkin*

12:40-12:50 **CLOSING SESSION**

12:50-14:00 **LUNCH**

12:40-14:00 **Meeting of the Program Committee**

General discussion

Papers selection for the special issue of an Int. Journal

Program Committee

- Victor Malyshkin, Head of the Supercomputer Software Department, Professor, Institute of Computational Mathematics and Mathematical Geophysics, Russian Academy of Sciences, Russia, Co-Chairman
- Darkhan Akhmed-Zaki, President of University of International Business, Professor at al-Farabi Kazakh National University, Kazakhstan, Co-Chairman
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- Yuri Karpov, Professor, Peter the Great St.Petersburg Polytechnic University, Russia
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- Jie Li, Professor, Faculty of Engineering, Information and Systems, University of Tsukuba, Japan
- Thomas Ludwig, Director of German Climate Computing Center, Professor, University of Hamburg, Germany
- Giancarlo Mauri, Director of Department of Computer Science, Systems and Communications, Professor, University of Milano-Bicocca, Italy
- Igor Menshov, Keldysh Institute for Applied Mathematics, Russian Academy of Sciences, Moscow, Russia
- Nikolay Mirenkov, Special honorary professor, University of Aizu, Japan

- Marcin Paprzycki, Associate professor, Systems Research Institute, Polish Academy of Sciences, Poland
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- Michel Raynal, Professor of Computer Science, Research Institute in Computer Science and Random Systems, Rennes, France
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- Uwe Schwiegelshohn, Professor of Computer Engineering, TU Dortmund University, Germany
- Victor Toporkov, Professor, Head of the Department of Computer Engineering, National Research University "Moscow Power Engineering Institute", Russia
- Carsten Trinitis, Professor, Head of the research group "Parallel and Distributed Architectures", Head of system administration, Technical University of Munich, Germany, Professor for Distributed Computing, University of Bedfordshire, United Kingdom
- Roman Wyrzykowski, Head of the Institute of Computer and Information Sciences, Director of Metropolitan Area Network, professor of Computer Science, Czestochowa University of Technology, Poland

Organizing Committee

- Victor Malyshekin, Head of the Supercomputer Software Department, Professor, Institute of Computational Mathematics and Mathematical Geophysics (ICM&MG SB RAS), Russian Academy of Sciences, Russia, Co-Chairmen
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