

Main Track: Numerical Algorithm and Parallel Scientific Computing		
1	Carl Christian Kjelgaard Mikkelsen, Lorién López-Villellas and Pablo García-Risueño	How accurate did Newton have to be?
2	Roman Iakymchuk, Stef Graillat and José Ignacio Aliaga	General framework for deriving reproducible Krylov subspace algorithms: BiCGStab case
3	Andrzej Sikorski, Izajasz Wrosz and Michał Lewandowski	A generalized parallel prefix scan algorithm for arbitrary size arrays
4	Daichi Mukunoki, Katsuhisa Ozaki, Takeshi Ogita and Toshiyuki Imamura	Fast Infinite-precision Inner Product and Sparse Matrix Vector Multiplication using Ozaki Scheme with Dot2 on Many-core Processors
5	Kamil Halbiniak, Tomasz Olas and Adam Kulawik	Using batched matrix operation and GPUs tensor cores to accelerate numerical modeling based on phase-field method
6	Venelin Todorov, Ivan Dimov, Maria Ganzha and Marcin Paprzycki	Advanced Stochastic Approaches for Applied Computing in Environmental Modeling
Main Track: Parallel Non-numerical Algorithms		
7	Zhihui Du, Sen Zhang and David A. Bader	Parallel Suffix Sorting for Large String Analytics
8	Julio Pires and Wellington Martins	Parallel Extremely Randomized Decision Forests on Graphics Processors for Text Classification
9	Anna Sasak-Okoń and Marek Tudruj	RDBMS speculative support improvement by the use of the query hypergraph representation
Main Track: Performance Analysis and Prediction in HPC Systems		
10	Ayesha Afzal, Georg Hager, Gerhard Wellein and Stefano Markidis	Exploring Techniques for the Analysis of Spontaneous Asynchronicity in MPI-Parallel Applications
11	Oleg Bystrov, Arnas Kačeniauskas and Ruslan Pacevič	Cost and Performance Analysis of MPI-based SaaS on the Private Cloud Infrastructure
12	Jelle van Dijk, Gábor Závodszy, Ana Lucia Varbanescu, Andy D. Pimentel and Alfons Hoekstra	Building Fine-Grained Analytical Performance Models for Complex Scientific Applications
13	Bartosz Balis and Michał Grabowski	Evaluation of machine learning techniques for predicting run times of scientific workflow jobs
14	Denis Shaikhislamov and Vadim Voevodin	Smart clustering of HPC applications using similar job detection methods
Main Track: Environments and Frameworks for Parallel/Cloud Computing		
15	Anshu Dubey and Tom Klosterman	Language Agnostic Approach for Unification of Implementation Variants for Different Computing Devices
16	Niranda Perera, Supun Kamburugamuve, Chathura Widanage, Vibhatha Abeykoon, Ahmet Uyar, Kaiying Shan, Thejaka Amila Kanewela, Geoffrey Fox, Hasara Maithree and Damitha Lenadora	High Performance Dataframes from Parallel Processing Patterns
17	Michał Orzechowski, Michał Wrzeszcz, Bartosz Kryza, Jakub Kudzia, Lukasz Dutka, Renata Słota and Jacek Kitowski	Global Access to Legacy Data-Sets in Multi-Cloud Applications with Onedata

Main Track: Applications of Parallel and Distributed Computing		
18	Rafael Ravedutti Lucio Machado, Jan Eitzinger, Harald Köstler and Gerhard Wellein	MD-Bench: A generic proxy-app toolbox for state-of-the-art molecular dynamics algorithms
19	Måns I. Andersson, Murugan Natarajan Arul, Artur Podobas and Stefano Markidis	Breaking Down the Parallel Performance of GROMACS, a High-Performance Molecular Dynamics Software
20	Daniil Pavlov, Daniil Kolotinskii and Vladimir Stegailov	GPU-based Molecular Dynamics of Turbulent Liquid Flows with OpenMM
21	Alberto Cabrera, Pavel Nichita, Sergio Afonso, Francisco Almeida and Vicente Blanco	Reliable energy measurement on heterogeneous Systems-on-Chip based environments
22	Ahmad Ababaei, Antoine Michel and Bogdan Rosa	A novel parallel approach for modeling the dynamics of aerodynamically interacting particles in turbulent flows
23	Felix Liu, Måns I. Andersson, Albin Fredriksson and Stefano Markidis	Distributed Objective Function Evaluation for Optimization of Radiation Therapy Treatment Plans
Main Track: Soft Computing with Applications		
24	Nitin Satpute, Anna Hambitzer, Saeed Aljaberi and Najwa Aaraj	GPU4SNN: GPU-based Acceleration for Spiking Neural Network Simulations
25	Jakub Grzeszczak, Artur Mikitiuk and Krzysztof Trojanowski	Ant System Inspired Heuristic Optimization of UAVs Deployment for k-Coverage Problem
26	Pawel Bratek, Lukasz Szustak and Jaroslaw Zola	Towards multi-threaded execution of counting queries in machine learning applications
27	Dawid Wiczerzak and Pawel Czarnul	Selected experimental investigation of dataset impact on chess position evaluation using a deep neural network
28	Łukasz Karbowski and Mariusz Kubanek	Using edge processing with artificial intelligence in monitoring the pedestrian crossing
Special Session on GPU Computing		
29	Vincent Hindriksen	Optimizing software for AMD MI100 and MI200 GPUs
30	Yu-Hsiang Tsai, Natalie Beams and Hartwig Anzt	Mixed Precision Algebraic Multigrid on GPUs
31	Krzysztof Jurczuk, Marcin Czajkowski and Marek Kretowski	Compact in-memory representation of decision trees in GPU-accelerated evolutionary induction
32	Severin Reiz, Tobias Neckel and Hans-Joachim Bungartz	Neural Nets with a Newton Conjugate Gradient Method on Multiple GPUs
Special Session on Parallel EVD/SVD and its Application in Matrix Computations		
33	Masato Kobayashi, Takeo Hoshi and Yusaku Yamamoto	Automatic code selection for the dense symmetric generalized eigenvalue problem using ATMathCoreLib
34	Gabriel Okša and Martin Bečka	On Relative Accuracy of the One-Sided Block-Jacobi SVD Algorithm
35	Lukasz Szustak and Marcin Lawenda	ccNUMA-aware optimization for computing approximate spectrum of eigenvalues of a graph
Special Session on Scheduling for Parallel Computing		
36	Joseph John, Joshua Milthorpe and Peter Strazdins	Distributed Work Stealing in a Task-Based Dataflow Runtime

37	Jaime Fomperosa, Mario Ibañez, Esteban Stafford and Jose Luis Bosque	Task Scheduler for Heterogeneous Data Centres based on Deep Reinforcement Learning
38	Pirah Noor Soomro, Mustafa Abduljabbar, Jeronimo Castrillon and Miquel Pericas	Shisha: Online scheduling of CNN pipelines on heterogeneous architectures
39	Minh Chung, Josef Weidendorfer, Karl Förlinger and Dieter Kranzlmüller	Proactive Task Offloading for Load Balancing in Iterative Applications

Workshop on Models, Algorithms and Methodologies for Hybrid Parallelism in New HPC Systems

40	Jesus Carrettero	Malleability Techniques for HPC Systems
41	Luisa Carracciolo, Davide Bottalico, Davide	Benchmarking A High Performance Computing Heterogeneous Cluster
42	Salvatore Cuomo, Francesco Fato, Lorenzo Ugga, Gaia Spadarella, Renato Cuocolo, Edoardo Prezioso, Fabio Giampaolo and Francesco Piccialli	A Generative Adversarial Network approach for noise and artifacts reduction in MRI head and neck imaging
43	Gianluca De Lucia, Marco Lapegna and Diego Romano	A GPU accelerated Hyperspectral 3D Convolutional Neural Network Classification at the Edge with Principal Component Analysis preprocessing
44	Valeria Mele and Giuliano Laccetti	Algorithm and software overhead: a theoretical approach to performance portability
45	Juan José Moreno Riado, Janusz Miroforidis, Ignacy Kaliszewski and Gracia Ester Martín Garzón	Parallel EUD models for accelerated IMRT planning on modern HPC platforms
46	Gennaro Mellone, Ciro Giuseppe De Vita, Diana Di Luccio, Sokol Kosta and Raffaele Montella	Environmental data tiling: store in Cloud, process at the Edge

Workshop on Quantum Computing and Communication

47	Gabriella Bettonte, Stéphane Louise and Renaud Sirdey	Cache modeling: a quantum approach
48	Aditya Das Sarma, Utso Majumder, Vishnu Vaidya, M Girish Chandra, Achanna Anil Kumar and Sayantan Pramanik	On Quantum-Assisted LDPC Decoding Augmented with Classical Post-Processing
49	Piotr Rydlichowski	Quantum Key Distribution as step toward European Scale Quantum Communication and distributed Quantum Computing Infrastructure.
50	Francisco Orts, Antonio Puertas, Ester M. Garzón	Quantum annealing to solve the unrelated parallel machine scheduling
51	Roman Gielerak and Marek Sawerwain	Super-gram operators for general bipartite quantum states
52	Mateusz Slys and Krzysztof Kurowski	Early experiences with a photonic quantum simulator for solving Job Shop Scheduling Problem
53	Justyna Zawalska and Katarzyna Rycerz	Solving the Traveling Salesman Problem with a Hybrid Quantum-Classical Feedforward Neural Network
54	Piotr Kotara, Tomasz Zawadzki and Katarzyna Rycerz	Software-aided analysis of EWL-based quantum games

55	Karol Bartkiewicz, Patrycja Tulewicz, Jan Roik and Karel Lemr	Collaborative generative quantum machine learning
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Workshop on Language-Based Parallel Programming Models

56	Marek Palkowski and Włodzimierz Bielecki	NPDP Benchmark Suite for Loop Tiling Effectiveness Evaluation
57	Beata Dmitruk and Przemysław Stpiczynski	Parallel Vectorized Implementations of Compensated Summation Algorithms
58	Ami Marowka	New Insights on the Revised Definition of the Performance Portability Metric
59	Ami Marowka	Inferential statistical analysis of performance portability
60	Rene Halver, Christoph Junghans and Godehard Sutmann	Kokkos-Based Implementation of MPCD on Heterogeneous Nodes
61	Lukas Reitz, Kai Hardenbicker and Claudia Fohry	Comparison of Load Balancing Schemes for Asynchronous Many-Task Runtimes

Workshop on Applications of Machine Learning and Artificial Intelligence in High Performance Computing

62	Pedro Alonso-Jordá, Héctor Martínez, Enrique S. Quintana-Ortí and Cristian Ramírez	Performance Analysis of Convolution Algorithms for Deep Learning on Edge Processors
63	Victor Toporkov, Dmitry Yemelyanov and Artem Bulkhak	Machine Learning-based Online Scheduling in Distributed Computing
64	Scott Hutchison, Daniel Andresen, Mitchell Neilsen, William Hsu and Benjamin Parsons	High Performance Computing Queue Time Prediction using Clustering and Regression
65	Thomas Miethlinger, Nico Hoffmann and Thomas Kluge	Acceptance Rates of Invertible Neural Networks on Electron Spectra from Near-Critical Laser-Plasmas: A Comparison
66	Paweł Rosciszewski, Adam Krzywaniak, Sergio Iserte, Krzysztof Rojek and Paweł Gepner	Adaptation of AI-accelerated CFD simulations to the IPU platform

Workshop on Applied High Performance Numerical Algorithms for PDEs

67	Alexej Moskovka and Jan Valdman	MATLAB implementation of hp finite elements on rectangles
68	Leszek Marcinkowski and Talal Rahman	Adaptive Parallel Average Schwarz Preconditioner for Crouzeix-Raviart Finite Volume Method
69	Xiujie Shan and Martin van Gijzen	Parareal method for anisotropic diffusion denoising
70	Piotr Krzyzanowski	Comparison of block preconditioners for the Stokes problem with discontinuous viscosity and friction
71	Maria Gokieli	A model for crowd evacuation
72	Jan Valdman, Alexej Moskovka and Marta Vohnoutová	Fast minimizations of nonlinear energies in physics using the finite element method

Minisymposium of HPC Applications in Physical Sciences

73	Michał Antkowiak	Simulations of the magnetic properties of doped chromium-based molecular rings
74	Daniel Langr and Tomas Dytrych	Parallel Identification of Unique Sequences in Nuclear Structure Calculations

75	Aneta Woźniak-Braszak, Sebastian Wołoszczuk, Andrzej Olejniczak and Michał Banaszak	Study of molecular dynamics of new pyridazine derivatives
76	Romuald Lemanski	Description of magnetic nanomolecules by the extended multi-orbital Hubbard model combined with DFT calculations
77	Bartosz Brzostowski, Artur Durajski, Konrad Gruszka and Jacek Wojtkiewicz	Structural and electronic properties of small-diameter Carbon NanoTubes: a DFT study

Minisymposium on High Performance Computing Interval Methods

78	Olga Kosheleva and Vladik Kreinovich	Need for Techniques Intermediate Between Interval and Probabilistic Ones
79	Xuan Tang, Zachary Ferguson, Teseo Schneider, Denis Zorin, Shoaib Kamil and Daniele Panozzo	A Cross-Platform Benchmark for Interval Computation Libraries
80	Nathalie Revol, Luis Benet Fernández, Luca Ferranti and Sergei Zhilin	Testing interval arithmetic libraries, including their IEEE-1788 compliance
81	Bartłomiej Kubica	A survey of interval algorithms for solving multicriteria analysis problems

Workshop on Complex Collective Systems

82	Hiroki Sayama	Social Fragmentation Transitions in Large-Scale Adaptive Social Network Simulations
83	Léo Bulckaen, Nilankur Dutta and Alexandre Nicolas	Parking search in urban street networks: Taming down the complexity of the search-time problem via a coarse-graining approach
84	Krzysztof Małeck, Piotr Wróbel and Patry Górk	A multi-cell cellular automata model of lane changing behaviour considering the aggressiveness and the autonomy
85	Robert Lubaś, Paweł Gałka, Dariusz Pałka and Jarosław Was	Comparison of the use of UWB and BLE as positioning methods in data-driven modeling of pedestrian dynamics
86	Krzysztof Ostrowski and Krzysztof Małeck	An Insight into the State-of-the-Art VFC with an Opportunistic Flavour