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Soggetti	Computers, Special purpose Computer systems Computer networks Software engineering Microprogramming Computer input-output equipment Special Purpose and Application-Based Systems Computer System Implementation Computer Communication Networks Software Engineering Control Structures and Microprogramming Input/Output and Data Communications
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Nota di contenuto	-- Supercomputer Simulation. -- Born Approximation and Transfer Learning to Accelerate the Training Stage in Data-Driven End-to-End Approach for Seismic Monitoring in Viscoelastic Media. -- Coarray Fortran Implementation of the TRM Tunnel Boundary Detection Algorithm Anastasia Galaktionova and Galina Reshetova. -- Comparison the Decomposition and Partitioning Approaches of Large Number of Boundary-Conforming Grids Covered Fractured Geological Media. -- Docking and Post-processing of 1 Million Molecules from the CNCL Database in Search of SARS-CoV-2 Mpro Inhibitors. --

Domain Decomposition for the Numerical Solution of the Cahn-Hilliard Equation. -- Efficient Parallel Computing for Dynamic Free Surface Flows: A Study with FLOW-3D. -- Microwave Tomography Method for Determining Inhomogeneities in the Inverse Diffraction Problem. -- Numerical Simulation of the Laser Pulse Propagation in Thin Cloud Layers. -- On the Problems of Convergence of Iterative Methods for Solving Two-Coefficient Inverse Problems of Ultrasound Tomography. -- Parallel Algorithms for Calculating Problems of Supersonic Cold Gas-Dynamic Spraying Nanoparticles on Substrates. -- Parallel Algorithms for Solving Mass Transfer Equations in the ”Fracture Set – Matrix System”. -- Parallel Efficiency Analysis of Reactive Transport Simulations Using the GeRa Software. -- Performance of parallel NetCDF output in the INM RAS Earth system model. -- Quantum-Chemical Calculations of the Enthalpy of Formation of Isomeric 5/6/5 Tricyclic Tetrazolotetrazine Derivatives Annelated with Nitroazoles. -- Simulating the Black Sea 7Be Transport with Nested General Circulation Models. -- Stresses in Thin Optical Films: Results of Highperformance Atomistic Simulation. -- The Influence of the Kelvin-Helmholtz Instability on the Shape and Decay of Molecular Clouds Remnants Moving behind the Shock Wave after a Supernova Explosion. -- The Numerical Dispersion Mitigation in Three-Dimensional Wavefields. -- Towards an Adaptation of the Nonlinear Harmonics Method Realized in an Unstructured Flow Solver for Simulation of Turbomachinery Problems on Supercomputers. -- Using the MULTICOMP Package to Predict the Properties of Polymer-based Materials. -- HPC, BigData, AI: Algorithms, Technologies, Evaluation. -- A Study of a Composable Approach to Parallel Programming for Many-core Multiprocessors. -- A Versatile Simulator for Complex Cluster Workloads. -- An Explanation Method for Semantic Segmentation Enhance Brain Tumor Classification. -- Benchmarking Deep Learning Inference on RISC-V CPUs. -- Evaluation and Prediction of Human Software Developers’ Perception of Large Language Models Suggestions Using GitHub Data. -- Incomplete factorization approach in algebraic domain decomposition methods. -- Job Mapping Cyclic Composite Algorithm for Supercomputer Resource Manager. -- OpenMP Parallel Efficiency for DFM Flow and Transport Model Coupled with Precipitation–Dissolution Reactions. -- Predicting Characteristics of Salmon Return Migration Using Machine Learning Models. -- Study of OpenCL-based neural network convolutions on GPUs. -- Supervised and Transfer Learning for Phase Transition Research. -- The Energy Efficiency Research of Code for Numerical Simulation of Plasma Physics Problems.

Sommario/riassunto

The two-volume set LNCS 15406 and 15407 constitutes the refereed proceedings of the 10th Russian Supercomputing Days International Conference, RuSCDays 2024, held in Moscow, Russia, during September 2024. The 43 full papers presented in these two volumes were carefully reviewed and selected from 95 submissions. The papers are organized in the following topical sections: Part I: Supercomputer Simulation; HPC, BigData, AI: Algorithms, Technologies, Evaluation Part II: Distributed Computing; HPC Education.