

Joint Usage/Research Center for Interdisciplinary Large-Scale Information Infrastructures

2018-2019 Joint Research Projects

2018-2019 Joint Research Projects 52 Projects (88 joint research centers)

【 International 3, Industrial 1, General 48】

※Exploratory Joint Research Projects are adopted as well.

HPCI-JHPCN projects are marked with *

NA: Very large-scale numerical computation DA:Very large-scale data processing

NW:Very large capacity network technology IS:Very large-scale information systems

International Joint Research Projects

Project Title	Leader(Affiliation)	Category	Joint Research Center
*Hierarchical low-rank approximation methods on distributed memory and GPUs	Rio Yokota (Tokyo Institute of Technology)	NA	Hokkaido, UTokyo, Tokyo Tech, Kyoto, Kyushu
*Innovative Multigrid Methods	Kengo Nakajima (The University of Tokyo)	NA	Hokkaido, UTokyo, Kyushu
*Optimisation of Fusion Plasma Turbulence Code toward Post-Petascale Era III	Yuuichi Asahi (National Institutes for Quantum and Radiological Science and Technology)	NA	Tokyo Tech, Nagoya

Industrial Joint Research Project

Project Title	Leader(Affiliation)	Category	Joint Research Center
*Application to Design Catalyst from Consideration of Weak Interaction Energies between and within Biological Macromolecule	Tomohiko Ushijima (Zeon Corporation)	NA, IS	Tokyo Tech

General Joint Research Projects (1/3)

Project Title	Leader(Affiliation)	Category	Joint Research Center
*Development of LES code for magnetohydrodynamic turbulence	Hideaki Miura (National Institute for Fusion Science)	NA	UTokyo
*Development of massively parallelized particle simulation code for fusion plasma research and visualization of the simulation results	Hiroaki Ohtani (National Institute for Fusion Science)	NA	Nagoya, Kyoto
*Large scale acoustic-fluid analysis on air-jet instruments and some pieces of acoustic equipment	Kin'ya Takahashi (Kyushu Institute of Technology)	NA, DA	Kyushu
*Interaction between turbulent mixing and large ensemble of micro particles with internal degrees of freedom	Toshiyuki Gotoh (Nagoya Institute of Technology)	NA	Nagoya
*Development and application of risk evaluation for heat stroke	Akimasa Hirata (Nagoya Institute of Technology)	NA	Tohoku
Massively-Parallelized Particle Simulation of Space Plasma Phenomena	Yohei Miyake (Kobe University)	NA	Hokkaido, Kyoto
Developments of information infrastructure for deep learning based analysis of two-dimensional scattering patterns of polymer materials during fracture and formation processes	Katsumi Hagita (National Defense Academy)	IS	Hokkaido, Nagoya, Osaka
Numerical simulation of stellar mergers, disruptions, and explosions	Ataru Tanikawa (The University of Tokyo)	NA	UTokyo, Tokyo Tech
*Large-scale Simulations by Advanced Numerical Methods with High-Performance/Adaptive-Precision/High-Reliability	Kengo Nakajima (The University of Tokyo)	NA	UTokyo, Tokyo Tech
Physiologically realistic study of subcellular calcium dynamics with nanometer resolution	Kengo Nakajima (The University of Tokyo)	NA, DA	UTokyo
High Performance Computational (HPC) Studies on Beyond the Standard Model of Particle Physics using Atoms and Molecules	Das Bhanu Pratap (Tokyo Institute of Technology)	NA	Tokyo Tech

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General Joint Research Projects (2/3)

Project Title	Leader(Affiliation)	Category	Joint Research Center
High-performance Randomized Matrix Computations for Big Data Analytics and Applications	Takahiro Katagiri (Nagoya University)	DA	UTokyo, Tokyo Tech, Nagoya
Isogeometric analysis for nonlocal stress field around lattice defects	Ryuichi Tarumi (Osaka University)	NA	Nagoya, Osaka
Implementation of parallel sparse solver on CPU-GPU hybrid architecture	Atsushi Suzuki (Osaka University)	NA	Osaka
Large scale simulation on detonation propagation in disk-shaped rotating detonation engine combustor	Akiko Matsuo (Keio University)	NA	Tohoku
Cartesian-Based CFD/CAA Hybrid Method for Noise Prediction in Aerospace Fields	Daisuke Sasaki (Kanazawa Institute of Technology)	NA	Tohoku, Nagoya
*Domain Partitioning with Compatibility between Load Balance and Communication Cost using Topology Optimization of MPF Method	Takayuki Aoki (Tokyo Institute of Technology)	NA	Tokyo Tech
*A Fully-explicit Computation for Incompressible Gas-liquid Two-phase Flows with Mesh Refinement Adapting to Interfaces and Implementation on a GPU Supercomputer	Takayuki Aoki (Tokyo Institute of Technology)	NA	Kyushu
*Database development of grain boundary anisotropic properties by data assimilation and large-scale grain growth phase-field simulations	Tomohiro Takaki (Kyoto Institute of Technology)	NA	Tokyo Tech
*Optimisation of real time tsunami inundation simulation for modern supercomputer systems	Akihiro Musa (Tohoku University)	NA	Tohoku, Osaka
*Plume Dispersion Simulation using Lattice Boltzmann Method in Urban Area	Naoyuki Onodera (Japan Atomic Energy Agency)	NA	Tokyo Tech
*Developing Monte Carlo codes available for high-density 2-color QCD as a way to determine the phase diagram	Kei Iida (Kochi University)	NA	Kyoto, Osaka
*Development of efficient algorithm for spatiotemporal boundary integral equation method and application to gigantic earthquake simulations	Ryosuke Ando (The University of Tokyo)	NA	UTokyo
Two-phase GPU computation by pressure evolution LBM for droplet infiltration to porous media	Masayuki Kaneda (Osaka Prefecture University)	NA	Tokyo Tech
*Investigation of formation and evolution history of galaxies using high-precision and high-resolution simulations	Yohei Miki (The University of Tokyo)	NA	UTokyo, Tokyo Tech
*Flooding analysis of a large cruise ship using a large-scale particle method	Hirofumi Hashimoto (Kobe University)	NA	Tokyo Tech
*Development of numerical methods for elastic wave propagation in heterogeneous and anisotropic materials and their application to nondestructive inspection	Takahiro Saitoh (Gunma University)	NA	Kyoto
Improvement of strong scalability of software MODYLAS by optimizing parallelized operations and communications	Yoshimichi Andoh (Institute for Molecular Science)	NA	UTokyo, Nagoya, Kyushu
Development and Application of Large-Scale Multiphase Flow Simulation based on Immersed Boundary Method	Shun Takahashi (Tokai University)	NA	Tohoku

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General Joint Research Projects (3/3)

Project Title	Leader(Affiliation)	Category	Joint Research Center
Simulation of seismic-waves incorporating non-linear responses of subsurface layers for studies of strong-motion prediction and source processes	Hiroshi Takenaka (Okayama University)	NA	Tokyo Tech, Nagoya
Mechanism for meson mass generation in lattice QCD with domain wall fermions	Motoo Sekiguchi (Kokushikan university)	NA	Osaka
Inter-datacenter file transfer examinations for HPC using real datasets	Ken T. Murata (National Institute of Information and Communications Technology)	IS	Tohoku, Nagoya, Kyoto, Kyushu
High Performance Computing Environment Applied to Airframe and Thrust Design of Winged Rocket For Practical Use	Masahiro Kanazaki (Tokyo Metropolitan University)	NA	Hokkaido, Nagoya, Kyushu
*Study of dark matter from lattice gauge theory	Hideaki Iida (RIKEN)	NA	Osaka
*Study of thinking networks by the trinity of user equipment, network edges, and cloud	Akihiro Nakao (The University of Tokyo)	NW	Hokkaido, Tohoku, UTokyo, Kyushu
*Constructions of fundamental theory in particle methods and their expansion to a large-scale simulator	Yusuke Imoto (Tohoku University)	NA	Nagoya, Kyushu
*Advancement of an AMR framework to realize effective high-resolution simulations	Takashi Shimokawabe (The University of Tokyo)	NA	UTokyo, Tokyo Tech
Study on mass transfer in complex turbulent flows by large-scale numerical simulation	Tatsuya Tsuneyoshi (Nagoya University)	NA	Nagoya
*Soil - structure - fluid interaction simulation for heavy rain disaster magnitude prediction and establishment of its international standard examples for V&V	Mitsuteru Asai (Kyushu University)	NA	Kyoto
Evaluation of large-scale reinforcement learning	Tomoyuki Kaneko (The University of Tokyo)	DA	UTokyo
*Enhancement of the GW space-time code for large-scale calculation of organic-metal interfaces	Susumu Yanagisawa (University of the Ryukyus)	NA	Tohoku
*Large scale simulation on layered coal dust explosion induced by shock wave	Akiko Matsuo (Keio University)	NA	Tohoku
*Study of computer-assisted detection of lesions in medical images using Deep Learning	Issei Sato (The University of Tokyo)	DA	UTokyo
*SIMD Optimization of In-Situ Visualization System using Particle Data	Takuma Kawamura (Japan Atomic Energy Agency)	NW	UTokyo, Nagoya, Kyoto
Resource Management System Toward Orchestration on Software-Defined IT Infrastructure	Yasuhiro Watashiba (Osaka University)	IS	Osaka
*Design of virtual aerodynamic shape by an integrated optimization of body-shape and plasma actuator installation	Takashi Matsuno (Tottori University)	NA	Hokkaido, Nagoya
Gyrokinetic simulation of divertor heat-load in magnetic fusion devices	Toseo Moritaka (National Institute for Fusion Science)	NA, DA	Tokyo Tech
Visualization and Statistical Modeling of Financial Big Data	Masayuki Jimichi (Kwansei Gakuin University)	NW	UTokyo