

Joint Usage/Research Center for Interdisciplinary Large-Scale Information Infrastructures 2016-2017 Joint Research Projects

2016-2017 Joint Research Projects 39 Projects (65 joint research centers)

【 International 3, Industrial 2, General 34 】

※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
*High-performance Randomized Matrix Computations for Big Data Analytics and Applications	Takahiro Katagiri (The University of Tokyo)	DA	UTokyo, Tokyo Tech, Nagoya
*Hierarchical low-rank approximation methods on distributed memory and GPUs	Rio Yokota (Tokyo Institute of Technology)	NA	Hokkaido, UTokyo, Tokyo Tech, Kyoto
*Cerebrospinal Fluid Flow Analysis in Subarachnoid Space	Ryusuke Egawa (Tohoku University)	NA	Tohoku

Industrial Joint Research Project

Project Title	Leader (Affiliation)	Category	Joint Research Center
*Development of numerical simulation techniques for geologic CO2 sequestration on post-peta scale platform	Hajime Yamamoto (Taisei Corporation)	NA	UTokyo
*Construction of the use scheme of HPC to make three dimensional models from experimental data of SPring-8 by particle mesh two dimensional pattern reverse Monte Carlo analysis	Tetsuo Tominaga (JSR Corporation)	NA	Hokkaido, Nagoya, Osaka

General Joint Research Projects (1/2)

Project Title	Leader (Affiliation)	Category	Joint Research Center
*Development and Application of Risk Assessment Simulation Techniques on Heat Stroke	Akimasa Hirata (Nagoya Institute of Technology)	NA	Tohoku
*Computational science toward innovative plasma-nanopowder mass-production	Masaya Shigeta (Osaka University)	NA	Tohoku
*Massively-Parallelized Particle Simulation of Space Plasma Phenomena	Yohei Miyake (Kobe University)	NA	Hokkaido, Kyoto
*Data Locality Optimization Strategies for AMR Applications on GPU-accelerated Supercomputer	Mohamed Wahib (RIKEN)	IS	Tokyo Tech
*Self-organization and emergence of order in spatial economics: Spatial coordination of population and industrial agglomerations	Tomoya Mori (Kyoto University)	NA	Kyoto
*Large scale simulation of polydisperse multiphase flow with reaction and metastability	Akiko Matsuo (Keio University)	NA	Tohoku
*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 parallel simulation of seismic and tsunami waves for the study of mega-thrust earthquakes in subduction zones	Hiroshi Takenaka (Okayama University)	NA	Utokyo, Tokyo Tech
*Development of large-scale GPU computing technique for phase-field crystal simulation of polycrystalline grain growth	Akinori Yamanaka (Tokyo University of Agriculture and Technology)	NA	Tokyo Tech
*Basic research of next generation large scale HPC use for coarse grained MD of polymer materials	Katsumi Hagita (National Defense Academy)	NA	Hokkaido, UTokyo, Nagoya, Osaka, Kyushu
*Very-large-scale grain growth simulations using multi-phase-field and molecular dynamics methods	Tomohiro Takaki (Kyoto Institute of Technology)	NA	Tokyo Tech
*A Large-scale multiphase simulation based on direct interaction between non-spherical particles and fluid using Lattice Boltzmann Method with Adaptive Mesh Refinement	Takayuki Aoki (Tokyo Institute of Technology)	NA	Tokyo Tech
*Development of an AMR framework to realize effective high-resolution simulations	Takashi Shimokawabe (Tokyo Institute of Technology)	NA	Tokyo Tech

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General Joint Research Projects (2/2)

Project Title	Leader (Affiliation)	Category	Joint Research Center
*A Research and a Practical Operation for the wide-area distributed virtualization infrastructure with disaster-tolerance and fault-tolerance evaluating system	Hiroki Kashiwazaki (Osaka University)	IS	Hokkaido, Tohoku, Kyoto, Osaka, Kyushu
*Developments of large-scale CFD simulations of ship behaviour and performance	Naoyuki Onodera (National Maritime Research Institute)	NA	Tokyo Tech
*Toward a resilient software defined infrastructure to support disaster management applications	Yasuhiro Watashiba (Nara Institute of Science and Technology)	IS	Osaka
*Development of a Powerful Tool for the Effective Particle Simulations of Debris Flows Using Dynamic Load Balance on a GPU Supercomputer	Satori Tsuzuki (Japan Agency for Marine-Earth Science and Technology)	NA	Tokyo Tech
Study on parallel algorithms for solving matrices by using iterative methods and direct methods on distributed-memory supercomputers	Akiyoshi Wakatani (Konan University)	NA	UTokyo, Kyoto, Osaka
Development of a Next Generation Simulator of Accretion Disks	Shigenobu Hirose (JAMSTEC)	NA	UTokyo
Inter-node communication optimization of tile algorithms for matrix factorization in distributed memory environment	Tomohiro Suzuki (University of Yamanashi)	NA	UTokyo
Interaction between turbulence and a large ensemble of micro particles with internal degrees of freedom	Toshiyuki Gotoh (Nagoya Institute of Technology)	NA	Nagoya
Acceleration of 3D Electromagnetic Field Analysis with a Numerical Framework based on Hierarchical Domain Decomposition	Shin-ichiro Sugimoto (Tokyo University of Science, Suwa)	NA	UTokyo, Nagoya
Multi-Platform Development of Fusion Plasma Turbulence Code toward Post-Petascale Era	Shinya Maeyama (Nagoya University)	NA	Tokyo Tech, Nagoya
A study for demonstration on the building of a next generation applied aerodynamics research platform using a fast CFD code	Yuichi Matsuo (Japan Aerospace Exploration Agency)	NA	Hokkaido
Large-scale Computation for Synchronization Analysis with Random Neural Networks	Hirromichi Suetani (Oita University)	DA	Kyushu
Development of GPU Tsunami Simulator for Tsunami Real-time Forecast	Shin Aoi (National Research Institute for Earth Science and Disaster Resilience)	NA	Tokyo Tech
Advanced Electromagnetic Field Analyses Based On HPC Technology	Takeshi Iwashita (Hokkaido University)	NA	Hokkaido, Kyoto
Parallelization of general-purpose molecular dynamics software MODYLAS optimized for many cores and wide SIMD architectures	Yoshimichi Andoh (Nagoya University)	NA	UTokyo, Nagoya
Numerical and Experimental collaborative study for breakthrough of high-Reynolds number turbulent flows and its application	Yoshinobu Yamamoto (University of Yamanashi)	NA, DA	Tohoku, Nagoya
Quantum Transport Simulator for the Next Generation Transistors	Nobuya Mori (Osaka University)	NA	Osaka
High-fidelity Multi-disciplinary Design of Winged Space Craft Using High Performance Computing	Masahiro Kanazaki (Tokyo Metropolitan University)	NA	Hokkaido, Nagoya
Verification & Validation of fluid-structure interaction simulation tools for the natural disaster prediction	Mitsuteru Asai (Kyushu University)	NA	Kyoto
Computational Science of Multi-Degree-of-Freedom Complex Turbulent Flow Phenomena	Takashi Ishihara (Nagoya University)	NA	Nagoya
Simulations of Ocean Circulation and Mixing in the Pan-Okhotsk Region	Tomohiro Nakamura (Hokkaido University)	NA	Hokkaido