



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

2021 Joint Research Projects I

2021 Joint Research Projects: 49 Projects (81 joint research centers)*
International 3, General 46

* 28 Exploratory Joint Research Projects are adopted as well. (As of May 2021)

Category Legend

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
Developing Accuracy Assured High Performance Numerical Libraries for Eigenproblems	Takahiro Katagiri (Nagoya University)		UTokyo, Nagoya
High resolution simulation of cardiac electrophysiology on realistic whole-heart geometries	Kengo Nakajima (The University of Tokyo)		UTokyo
Hierarchical low-rank approximation methods on distributed memory and GPUs	Rio Yokota (Tokyo Institute of Technology)		Hokkaido, UTokyo, Tokyo Tech, Nagoya, Kyoto, Osaka

General Joint Research Projects(1/2)

Project Title	Leader (Affiliation)	Category	Joint Research Center
Projection of flood damage estimation in Japan	So Kazama (Tohoku University)		Tohoku
Mixed-precision Poisson solver for CFD applications in Nuclear Engineering on GPU, CPU, and ARM processors	Naoyuki Onodera (Japan Atomic Energy Agency)		UTokyo, Tokyo Tech, Nagoya
Development of high-performance parallel code for LES of MHD turbulence	Hideaki Miura (National Institute for Fusion Science)		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)		Nagoya, Kyoto
A study of hydrogen quantum effect in crystalline system based on large-scale electronic structure simulations	Masanori Tachikawa (Yokohama City University)		Kyushu
Combination of HPC and high-speed data transfer technologies for big-data processing systems	Takeshi Murata (National Institute of Information and Communications Technology)		Tohoku, UTokyo, Nagoya, Kyoto, Kyushu
Large-scale phase-field lattice Boltzmann simulations for full-scale solidification structure prediction during additive manufacturing	Tomohiro Takaki (Kyoto Institute of Technology)		Tokyo Tech
Study of computer-assisted detection of lesions in medical images using deep learning	Issei Sato (The University of Tokyo)		UTokyo
Large-scale aeroacoustic simulation on wind instruments and acoustic equipments	Kinya Takahashi (Kyushu Institute of Technology)		Nagoya, Kyushu
Simulation for a gerris running on water surface	Takayuki Aoki (Tokyo Institute of Technology)		Tokyo Tech
Large scale simulation for turbulent transport of many dispersed particles	Takeshi Watanabe (Nagoya Institute of Technology)		Nagoya
High-performance and Highly-reliable Numerical Methods and Applications	Takeshi Ogita (Tokyo Woman's Christian University)		Hokkaido, UTokyo, Tokyo Tech, Nagoya
Developing Monte Carlo codes available for high-density 2-color QCD as a way to determine the phase diagram	Kei Iida (Kochi University)		Kyoto, Osaka
Development of physics informed machine learning for soft matter: polymer flows and beyond	John Molina (Kyoto University)		UTokyo, Nagoya
Construction of Hybrid Cloud System and Genome Data Transfer among Multiple Regions	Masao Nagasaki (Kyoto University)		UTokyo, Kyoto, Kyushu
Application of Software Auto-Tuning Technology to Machine	Teruo Tanaka (Kogakuin University)		Nagoya
A numerical study on the referential grain size of permeability models	Shuji Moriguchi (Tohoku University)		Kyoto
Integration of 3D Simulation for Seismic Wave Propagation & Real-Time Data Assimilation	Kengo Nakajima (The University of Tokyo)		UTokyo, Nagoya
Development of efficient boundary integral equation method and application to gigantic earthquake simulations	Ryosuke Ando (The University of Tokyo)		UTokyo
Innovative Multigrid Methods II	Akihiro Fujii (Kogakuin University)		UTokyo, Nagoya



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

2021 Joint Research Projects II

2021 Joint Research Projects: 49 Projects (81 joint research centers)*
International 3, General 46

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Category Legend

NA : Very large-scale numerical computation	DA : Very large-scale data processing
NW : Very large capacity network technology	IS : Very large-scale information systems

General Joint Research Projects (2/2)

Project Title	Leader (Affiliation)	Category	Joint Research Center
Lyapunov exponents and Lyapunov vectors of a dynamical system constructed by machine learning	Yoshitaka Saiki (Hitotsubashi University)	NA	UTokyo, Kyoto
Mechanism of heat exchange of complicated structures by two-phase heat and fluid flow simulation	Masayuki Kaneda (Osaka Prefecture University)	NA	Tokyo Tech
Evaluating the Effectiveness of Stent Graft Treatment for Aortic Dissection using Fluid-Structure Interaction Analysis	Ryo Takeda (Hokkaido University)	NA	Hokkaido
Optimization of medical image application toward large-scale distributed medical imaging	Satoshi Ohshima (Nagoya University)	DA	UTokyo, Nagoya
Numerical simulation of ice impacts on ship	Seiya Watanabe (Kyushu University)	NA	Tokyo Tech
Mechanism for mass generation of scalar mesons in lattice QCD	Motoo Sekiguchi (Kokushikan University)	NA	Osaka
Fusion of high-performance wave analysis techniques and data science toward the realization of NDE4.0	Takahiro Saitoh (Gunma University)	NA	Hokkaido, Kyoto
Construction of a platform for data science of high Reynolds number turbulence	Takashi Ishihara (Okayama University)	NA	UTokyo, Nagoya, Kyushu
Development of GPU-based Simulator for Polymer Materials to Control Bond-Cross-Prohibition	Katsumi Hagita (National Defence Academy)	NA	UTokyo, Nagoya, Osaka
Improvements of FMO program ABINIT-MP for huge scale systems	Yuji Mochizuki (Rikkyo University)	NA	Nagoya
Constructions of fundamental theory and technology in particle methods and their expansion to multiphysics simulator	Masao Ogino (Daido University)	NA	Nagoya, Kyushu
Study on scalar transport in complex turbulent flows by large-scale numerical simulation	Tatsuya Tsuneyoshi (Nagoya University)	NA	Nagoya
Synthetic Population Project: Assignment of Working/Schooling Places & Deep Learning-Based Residential Place Classification	Tadahiko Murata (Kansai University)	NA DA	Hokkaido, UTokyo, Osaka
Development and Application of Risk Evaluation for Heat Stroke	Akimasa Hirata (Nagoya Institute of Technology)	NA	Tohoku
Enhancement of the GW space-time code for treatment of organic-metal interfaces	Susumu Yanagisawa (University of the Ryukyus)	NA	Tohoku
Performance Prediction Techniques for Numerical Methods in the Exascale Era	Takeshi Fukaya (Hokkaido University)	NA	Hokkaido, UTokyo, Nagoya
Networked Materials Informatics based on Absolute Energy Estimation by TOMBO	Yoshiyuki Kawazoe (Tohoku University)	NA	Kyushu
Dynamic Load Balancing Framework Based on Graph Structures and its Application to S-version Finite Element Method	Naoki Morita (The University of Tsukuba)	NA	UTokyo
Study on Multi-scale Space Plasma Simulations with Cross-Reference Framework	Yohei Miyake (Kobe University)	NA	Hokkaido, Kyoto, Kyushu
Developing data driven analysis methods for extreme scale numerical simulations	Yuuichi Asahi (Japan Atomic Energy Agency)	NA DA	UTokyo, Tokyo Tech, Nagoya
Development of Fast Surrogate for Approximating Large-scale 3D Blood Flow Simulation	Takashi Shimokawabe (The University of Tokyo)	NA DA	UTokyo
Integrated Simulation of Aerodynamics, Propulsion, and Structure to Establish Design Study Techniques for Propeller-Driven Small Aircraft	Masahiro Kanazaki (Tokyo Metropolitan University)	NA	Hokkaido, Tohoku, Nagoya
Efficient Method for Integrated Optimization of Flow Control Devices and Body Geometries	Takashi Matsuno (Tottori University)	NA	Hokkaido
Waveform tomography for the structure model of the subduction zones by using large-scale seismic-wave simulations: the source region of the 2011 Tohoku-Oki earthquake and the Ryukyu (Nansei-Shoto) island arc area	Taro Okamoto (Tokyo Institute of Technology)	NA	Tokyo Tech, Nagoya
Development of an AI system that makes orthodontic diagnosis and treatment planning	Chihiro Tanikawa (Osaka University)	IS	Osaka
Visualization and Statistical Modeling of Financial Big Data	Masayuki Jimichi (Kwansei Gakuin University)	NW	UTokyo