Joint Usage/Research Center for Interdisciplinary Large-Scale Information Infrastructures 2025 Joint Research Projects

2025 Joint Research Projects: 74 Projects (145 joint research centers)
[5 International , 0 Industrial , 69 General]
− There are other Exploratory Joint Research Projects to be Adopted

CS：Large-scale computational science area　　　DS：Data science/data usage area

International Joint Research Projects

Project ID	Project Title	Representative(Affiliation)	Area	Joint Research Center	mdx
jh250027	Innovative Computational Science by Integration of Simulation/Data/Learning on Heterogeneous Supercomputers	Kengo Nakajima (The University of Tokyo)	CS	Hokkaido, UTokyo, Nagoya, Kyushu	✓
jh250028	High resolution simulation of cardiac electrophysiology on realistic whole-heart geometries	Kengo Nakajima (The University of Tokyo)	CS	UTokyo, Nagoya	
jh250037	Practical acceleration methods to achieve high performance for large-scale applications	Takashi Shimokawabe (The University of Tokyo)	CS	UTokyo, Nagoya	
jh250043	Innovative Multigrid Methods III	Akihiro Fujii (Kogakuin University)	CS	UTokyo, Nagoya, Kyoto, Kyushu	
jh250059	Energy Efficient Operation for Supercomputer Systems	Toshihiro Hanawa (The University of Tokyo)	CS	Hokkaido, Tohoku, UTokyo, Science Tokyo, Nagoya, Kyoto, Osaka, Kyushu	

General Joint Research Projects (1/2)

Project ID	Project Title	Representative(Affiliation)	Area	Joint Research Center	mdx
jh250001	Safty Assessment of Non-Ionizing Radiation Exposure Considering Environmental Factors	Sachiko Kodera (Nagoya Institute of Technology)	CS	Tohoku	
jh250002	Making FMO Program ABINIT-MP Next Generation	Yuji Mochizuki (Rikkyo University)	CS	Tohoku, UTokyo, Nagoya, Kyushu	
jh250005	Development for new compressible fluid solver based on Logarithm conformation representation	Takashi NAKAZAWA (Kanakazawa Universtiy)	CS	Osaka	
jh250006	Clarification of earthquake-induced geomechanical failure phenomena using a seismic response Peridynamics with unstructured grid particles	Taiki Shimbo (Ishikawa College)	CS	UTokyo	
jh250008	Large-scale computation for quantitive heat removal evalution by direct coooling of electric motor	Masayuki KANEDA (Osaka Metropolitan University)	CS	Science Tokyo	
jh250010	Construction of Haplotype Reference using Long Read Sequencer and Pilot Implementation of Cross-Cloud Batch Job Framework Across Multiple Different Cloud Platform	Masao Nagasaki (Kyushu University)	DS	UTokyo, Kyoto, Kyushu	✓
jh250011	Generation of GeV protons by micro nozzle acceleration	Murakami Masakatsu (Osaka University)	CS	Osaka	
jh250012	Construction of a platform for standardization of water environment assessment by EcoPARI which is a ecological hydrodynamics simulation	Matsuzaki, Yoshitaka (Port and Aviation Technology)	CS	UTokyo, Osaka	✓
jh250013	Development of multi-hierarchy turbulence simulation code with dynamic reducemodelling	Hideaki MIURA (National Institute for Fusion Science)	CS	UTokyo, Nagoya	
jh250014	Development of Computational Techniques for Coupled Simulation of Space-Terrestrial-Planetary Systems	Yohei Miyake (Kobe University)	CS	Kyoto, Kyushu	
jh250015	New Horizon Technology of Auto-tuning by Software Engineering	Takahiro Katagiri (Nagoya University)	CS	UTokyo, Nagoya, Kyushu	
jh250016	Large-scale comparative genomic analysis to elucidate the evolution and infectious process of pathogenic bacteria	Masaya Yamaguchi (National Institutes of Biomedical Innovation, Health and Nutrition)	CS	Osaka	
jh250017	DisasterVLM: Building Vision-Language Models for Next-Generation Disaster Response	Naoto Yokoya (The University of Tokyo)	DS	Tohoku, UTokyo	
jh250018	Novel Expansion of High-performance and Highly-reliable Numerical Methods and Applications (2)	Takahior Katagiri (Nagoya University)	CS	Hokkaido, UTokyo, Science Tokyo, Nagoya, Kyoto, Kyushu	
jh250019	Renovating Scientific Applications to Unlock the Potential of Next-generation Supercomputers	Rio Yokota (Institute of Science Tokyo)	CS	Hokkaido, Science Tokyo, Kyoto	
jh250020	Climate Change effects on Probable Maximum Precipitation for Mesoscale Convective Systems	Yusuke Hiraga (Tohoku University)	CS	Tohoku	
jh250021	High quality modeling of fluid dynamics using reservoir computing	Yoshitaka Saiki (Hitotsubashi University)	CS	UTokyo	
jh250022	Establishing Methods for Modeling Neutral Gas Flows towards the Realization of a Numerical Vacuum Chamber	Keita Nishii (Tokyo Metropolitan University)	CS	UTokyo	
jh250023	Aerodynamic-Structural Coupled Calculation and Optimization of Wing Vein Patterns for Flexible Membrane Wings for Mars Airplane	Masahiro Kanazaki(Faculty of System Design, Tokyo Metropolitan University)	DS	Hokkaido	
jh250024	Digital platform for plant aerodynamic simulations	Yusuke Takahashi (Hokkaido University)	CS	Hokkaido, Science Tokyo	
jh250026	Large-scale numerical investigation on Detonation-assisted Turbulent Combustion Phenomena in Scramjet Engine	Akiko Matsuo (Keio University)	CS	Tohoku	
jh250029	Selective Forgetting for Multimodal Foundation Models	Go Irie (The University of Tokyo)	DS	UTokyo	✓
jh250030	Material parameter estimation for dendrite growth simulation by phase-field method and data science	Tomohiro Takaki (Kyoto Institute of Technology)	CS	Science Tokyo	
jh250031	Multi-scale Simulator Based on Dynamic Load Balancing Framework Generalized by Graph Structures	Morita Naoki (University of Tsukuba)	CS	UTokyo, Osaka	
jh250032	Study on high performance computing techniques for QR factorization	Takeshi Fukaya (Hokkaido University)	CS	Hokkaido, Tohoku, UTokyo, Kyoto, Osaka, Kyushu	
jh250033	Research on realization of medical image analysis platform by linking database platform and HPC platform via SINET	Kohei Murao (National Institute of Informatics)	DS	Nagoya	✓
jh250034	Enhancement and performance improvement of the data-driven science framework ODAT-SE	Shuhei Kudo (The University of Electro-Communications)	CS	Hokkaido, UTokyo	
jh250035	Next Generation Meso-scale Ensemble Prediction System by Human-Machine Conbined Atmospheric Modeling	Yohei Sawada (The University of Tokyo)	CS	UTokyo, Nagoya	
jh250039	Large-scale simulation of the interaction between turbulence and particles with internal degrees of freedom	Takeshi Watanabe (Nagoya Institute of Technology)	CS	Nagoya	
jh250040	Parallelized high-throughput platform for topology analysis of ultra-large-scale polymer MD data	Katsumi Hagita (National Defense Academy)	CS	Hokkaido, UTokyo, Osaka, Kyushu	✓
jh250041	Study on the real effect of non-blocking collective communications	Takeshi Nanri (Kyushu University)	CS	Hokkaido, UTokyo, Nagoya, Kyoto, Osaka, Kyushu	
jh250044	Database Construction of Polymer Informatics for Sound Material-Cycle Society	Masahiro Sato (The University of Tokyo)	DS	UTokyo, Osaka	✓
jh250045	Development of fast sweep method for frequency response of wave scattering fields and its applications to metamaterial device design	Yasuhiro Matsumoto (Institute of Science Tokyo)	CS	UTokyo, Science Tokyo, Kyoto	

General Joint Research Projects（2/2）

Project ID	Project Title	Representative(Affiliation)	Area	Joint Research Center	mdx
jh250046	Development of the Self-learning Monte Carlo method with CPU and GPU	Yuki Nagai (The University of Tokyo)	CS	UTokyo	
jh250048	Solid Material Discovery Using Generative Models	Masatoshi Hanai (The University of Tokyo)	DS	UTokyo	
jh250050	Research on surgical scene recognition utilizing simulation data	Masahiro Oda (Nagoya University)	CS	Nagoya	
jh250051	Disgnostic estimation of urban airflows by statistical downscaling using urban turbulence database	Atsushi Inagaki (Institute of Science Tokyo)	CS	Science Tokyo	✓
jh250053	High performance computing for large-scale unclarified slope disasters by using MPM and FEM	Kenjiro Terada (Tohoku Univresity)	CS	UTokyo, Nagoya	
jh250055	ReplicaEUJP: Research on the replicability of climate simulations across different computing environments	Hisashi YASHIRO (National Institute for Enviromental Studies)	DS	UTokyo	
jh250056	Velocity/pressure unified solver for the particle method using the variational multiscale method	Mitsuteru Asai (Kyushu University)	CS	UTokyo, Kyushu	
jh250060	Structure formation at the early Universe revealed by numerical simulations	Atsushi J. Nishizawa (Gifu Shotoku Gakuen University)	CS	UTokyo, Osaka	
jh250062	Urgent job execution by collaboration of multiple computing centers	Hiroyuki Takizawa (Tohoku University)	CS	Tohoku, Nagoya, Osaka	✓
jh250063	Large language model driven evolutionary algorithm for automatically generating optimization benchmark problems	HARADA Tomohiro (Saitama University)	CS	UTokyo	
jh250064	Synthetic Population Project: Time Use Allocation to Agents in Synthetic Population	Tadahiko Murata(D3 Center, Osaka University)	DS	Hokkaido, UTokyo, Osaka	
jh250066	General relativistic simulation of topological defects in the early universe	Naoya Kitajima (Tohoku University)	CS	Tohoku	
jh250067	Large-Scale Numerical Analysis of Flow Fields Containing Narrow Clearances and Thin Structures for Engineering Applications	Yuki Kawamoto (Tokai University)	CS	Tohoku	
jh250068	Study on speeding up numerical methods for solving large-scale linear matrix equations	Yuki Satake (Hokkaido University)	CS	Hokkaido, UTokyo, Kyoto	
jh250070	Development of high-performance wave analysis and inverse analysis techniques for accelerating NDE4.0	Tahahiro Saitoh (Gunma University)	CS	Science Tokyo, Kyoto	
jh250072	Machine Learning-Driven Multi-Scale Simulations for Green Catalysis Design	Yoshitada Morikawa (Osaka University)	DS	Osaka	
jh250073	AI leveraged multiscale scheme for kinetic equations	Shugo Yasuda (University of Hyogo)	CS	Osaka	
jh250074	Construction of a platform for data-driven science of high Reynolds number turbulence	Takashi Ishihara (Okayama University)	DS	Nagoya, Kyushu	✓
jh250075	Large scale numerical simulation to predict fracturing process in underground rock masses induced by injection of carbon dioxide with water and its application to Geothermal Power Generation using carbon dioxide.	Sho Ogata (Osaka University)	CS	Hokkaido, Osaka	
jh250076	Multifaceted approach to construct a realistic scenario of gas dissipation in protoplanetary disks	Shinsuke Takasao (Osaka University)	CS	UTokyo, Osaka	
jh250078	Development of predictive models for the dynamics of amorphous systems by graph neural networks and generative models	Hayato Shiba University of Hyogo)	CS	UTokyo	✓
jh250079	Study on Efficient File IO for GPU	Toshihiro Hanawa (The University of Tokyo)	CS	Hokkaido, UTokyo, Science Tokyo, Kyushu	
jh250081	End-to-End Differentiable Fluid-Particle Simulations	John Jairo Molina Lopez (Kyoto University)	CS	UTokyo, Kyoto	
jh250082	High-Performance Computing of Flow Around Fractal Tree	Ryo Onishi (Institute of Science Tokyo)	CS	Science Tokyo	
jh250083	Program optimization based on "All Core Computing"	Satoshi Ohshima (Kyushu University)	CS	Hokkaido, UTokyo, Science Tokyo, Nagoya, Kyushu	
jh250084	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 (Institute of Science Tokyo)	CS	Science Tokyo, Nagoya	
jh250087	Validation of the Two-Phase Lattice Boltzmann Method for Wake Vortex-Induced Gas Entrainment	SITOMPUL Yos (Japan Atomic Energy Agency)	CS	UTokyo	
jh250088	Construction of a Large Language Model Specialised in Predicting Brain Activity	Ichiro Kobayashi (Ochanomizu University)	DS	UTokyo	
jh251002	Development of the data platform of Tomo-e Gozen	Satoshi Takita (The University of Tokyo)	DS		✓
jh251003	Study on Storage Architecture for Machine Learning	Takaki Nakamura (Tohoku University)	DS	Tohoku	✓
jh251004	Visualization and Statistical Modeling of Financial Big Data	Masayuki Jimichi (Kwansei Gakuin University)	DS	UTokyo	✓
jh251005	Scaling a Data Platform for Materials Science	Masatoshi Hanai (The University of Tokyo)	DS	UTokyo	✓
jh251007	Development of dependency-parsers for "untokenized" natural languages	Koichi Yasuoka (Kyoto University)	DS		✓
jh251011	Development of RE-CODE, a data platform to accelerate social implementation of technologies for beyond zero-carbon	Yuichiro Kanematsu (The University of Tokyo)	DS	UTokyo	✓
jh251012	Development of a common analysis infrastructure for global km-scale models	Masaki Satoh (The University of Tokyo)	DS		✓
jh251015	Construction of geoscientific platform for multi-dimensional high definition earth surface data (MHESD)	Yuichi S. Hayakawa (Hokkaido University)	DS		✓

-Affiliation information is as of the time of adoption