



Center for Research on Innovative Simulation Software

[Research and Development of Large-Scale Simulation used in Industry]

<http://www.ciss.iis.u-tokyo.ac.jp>

Aiming at Innovation in MO-NO-DU-KU-RI

High performance simulation software drastically changes engineering

Center for Research on Innovative Simulation Software (CISS) was found to conduct R&D on the advanced and practical computational science simulation software utilizing hyper-large-scale simulations represented by "Kei" for the next hyper-simulation era. We aim at

- ◆ Conducting world-leading advanced research on hyper-large-scale simulation software
- ◆ Strengthening the educational foundation to educate how to make and use hyper-simulation software for industrial application
- ◆ Putting R&D results in common industrial use to enhance global competitiveness of domestic engineering

Center Director	Center Vice Director									
KATO, Chisachi Professor	YOSHIKAWA, Nobuhiro Professor	HAMBA, Fujihiro Professor*	OSHIMA, Marie Professor*	SATO, Fumitoshi Professor	MIZOGUCHI, Teruyasu Professor*	OOKA, Ryoza Professor*	ONO, Kenji Visiting Prof.	UMENO, Yoshitaka Associate Prof.	HASEGAWA, Yosuke Associate Prof.	NAGAI, Kohei Associate Prof.*

* Cooperating Member

Introduction of the Research

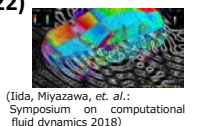
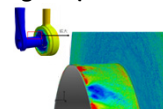
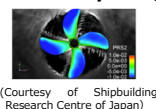
Manufacturing	Design of Molecular and Nanoscale Materials and Devices	Medical engineering and Environmental Building Science
<p>C. Kato Absolute vorticity in a centrifugal blower</p> <p>N. Yoshikawa Developing high pressure hydrogen tank supported by meso-scale simulation</p> <p>F. Hamba Contours of kinetic energy of turbulent diffusion in rotating system. Red denotes right-handed helical motion and blue denotes left-handed helical motion</p> <p>Y. Hasegawa Instantaneous turbulent flow over a flat plate under optimal control for heat transfer enhancement and friction drag suppression</p>	<p>F. Sato Highest occupied molecular orbital of insulin drawn by cloud-like model</p> <p>T. Mizoguchi Wave function at the bottom of the conduction band of MgO at (top) ground state, (middle) core-hole state at Mg2p orbital, and (bottom) core-hole state at Mg1s orbital</p> <p>Y. Umeno Deformation of Polycarbonate by Coarse-Grained Particle Model Simulation</p>	<p>M. Oshima Schematic of integrated simulation system "M-SPhyR Circulation" (Multi-scale and physics simulator for circulation)</p> <p>R. Ooka Analyses of flowfield in and around building using Lattice Boltzmann Method</p> <p>K. Nagai Failure of RC beam-column joint by RBSM</p>
<h4>Large-Scale Data Analysis</h4> <p>K. Ono Web-based workflow system WHEEL</p>		

Major National Project being Promoted by CISS

Program for Promoting Researches on the Supercomputer Fugaku:

Research and development of innovative fluid-dynamics simulations for performance predictions by using Fugaku (2020-2022)

- Overview: We develop application software, by which optimal performance of HPCI (High Performance Computing Infrastructure), including supercomputer Fugaku, is got and manufacturing processes are changed.
- Responsible organization: The Univ. of Tokyo; Kobe Univ.; Kyushu Univ.; Iwate Univ.; Toyohashi Univ. of Tech.; Univ. of Yamanashi; RIKEN



Leading Institute

