Center for Research on Innovative Simulation Software

[RADICAL INNOVATION IN MO-NO-DU-KU-RI]

http://www.ciss.u-tokyo.ac.jp/

Aiming 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
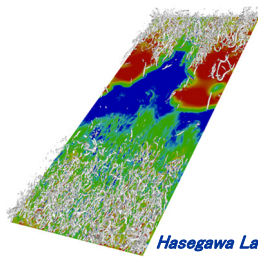
Digital Engineering
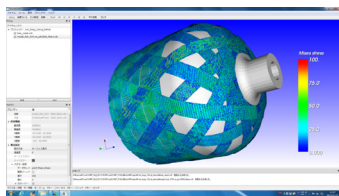
Yoshikawa Lab.
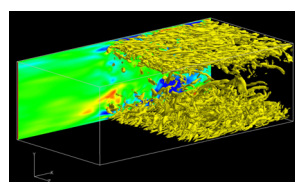Meso-scale optimum design of CFRP vessel for high pressure hydrogen
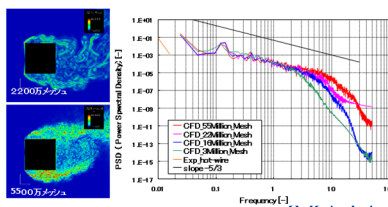
Accurate prediction of turbulent flow around square prism.
(left: vortex structure)
(right: power spectrum of velocity)
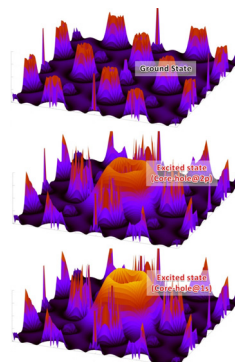*C. Kato Lab.*

Hasegawa Lab.
Instantaneous turbulent flow over a flat plate under optimal control for heat transfer enhancement and friction drag suppression
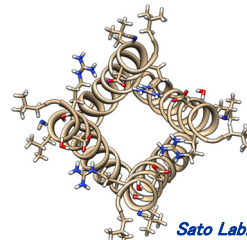

Hamba Lab.
Analysis of velocity field in turbulent channel flow for hybrid RANS/LES simulation
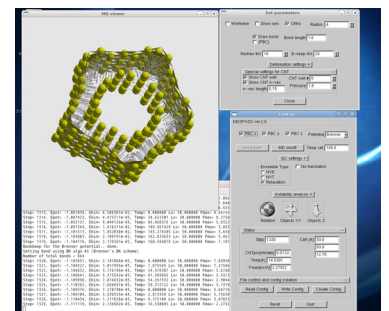
Nano-technology

Mizoguchi Lab.
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
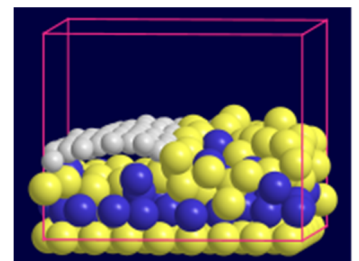

Umeno Lab.
Software development for deformation analysis of multi-walled carbon nanotubes

Sato Lab.
Structure of M2 protein of the Influenza A virus

Ohno Lab.
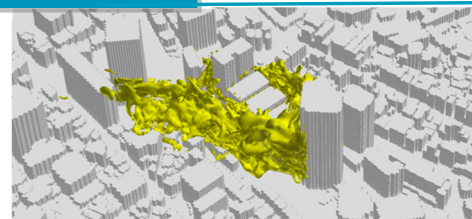First-Principles MD simulation on CVD growth of graphene on Cu(111)

Medical Support
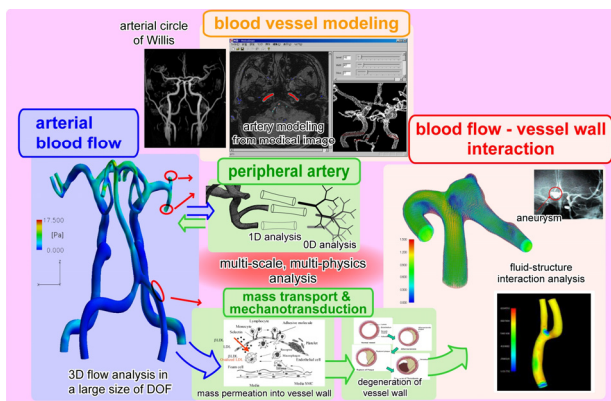
Ohshima Lab.
Schematic illustration of integrated simulation system "M-SPhyR Circulation"
(Multi-Scale and Physics SimulatoR for Circulation)

Disaster Mitigation

S. Kato Lab.
Large Eddy Simulation for Diffusion of Hazardous Materials in Buildings Complex

Institute of Industrial Science