Center for Research on Innovative Simulation Software

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

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

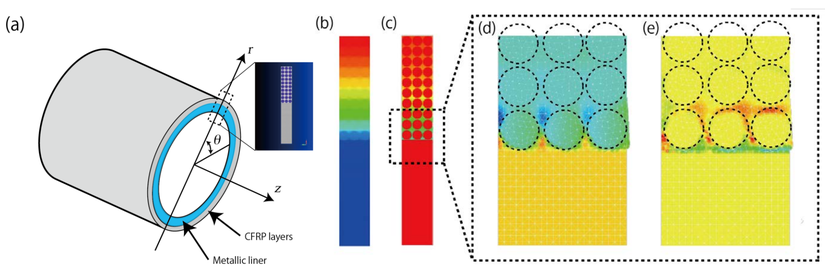
Aiming Innovation in MO-NO-DU-KU-RI

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

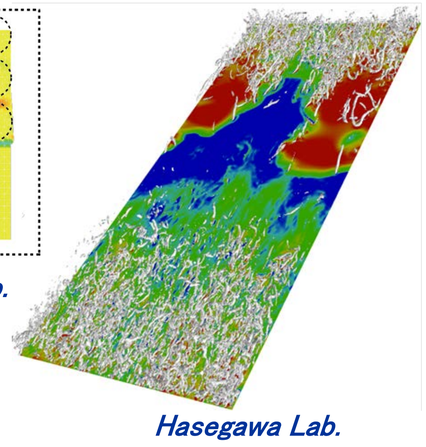
- ◆ Conducting world-leading advanced research on hyper-large-scale simulation software
- ◆ Strengthening the educational foundation to educate how to make and use hyper-simulation software for industrial application
- ◆Putting R&D results in common industrial use to enhance global competitiveness of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

Digital Engineering



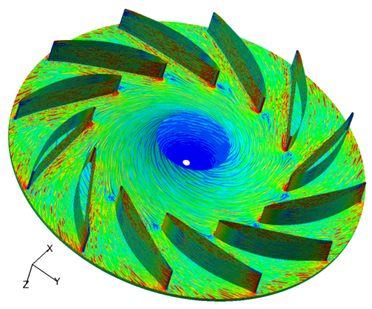
Yoshikawa Lab.

Meso-scale simulation of residual strain after curing process of carbon-fiber-reinforced plastic (CFRP) tanks for fuel cell vehicles



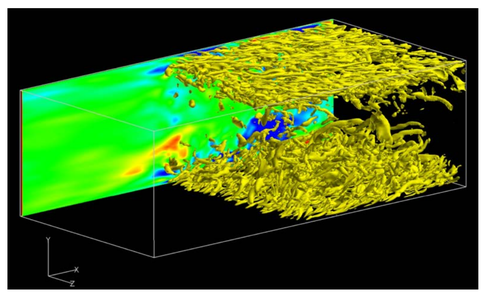
Hasegawa Lab.

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



C. Kato Lab.

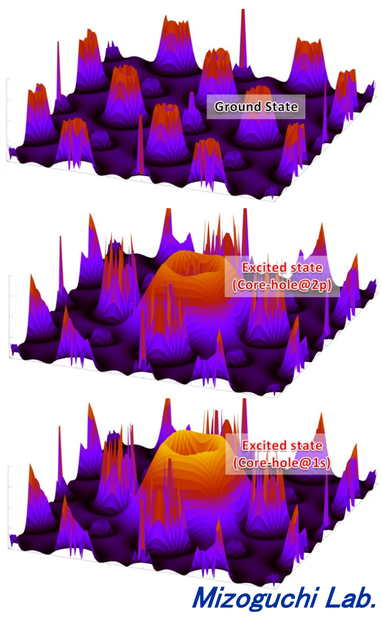
Absolute vorticity in a centrifugal blower



Hamba Lab.

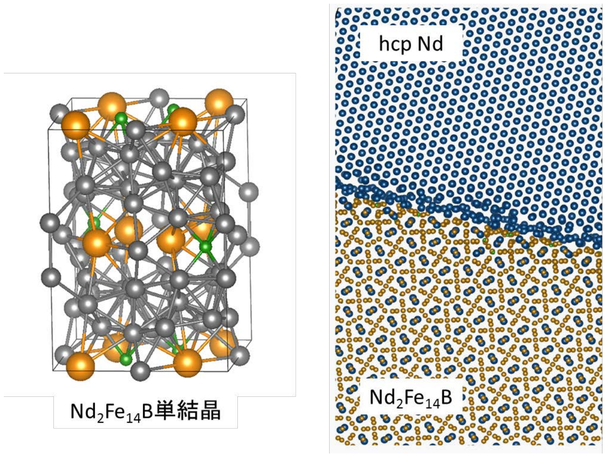
Analysis of velocity field in turbulent channel flow for hybrid RANS/LES simulation

Nano-technology



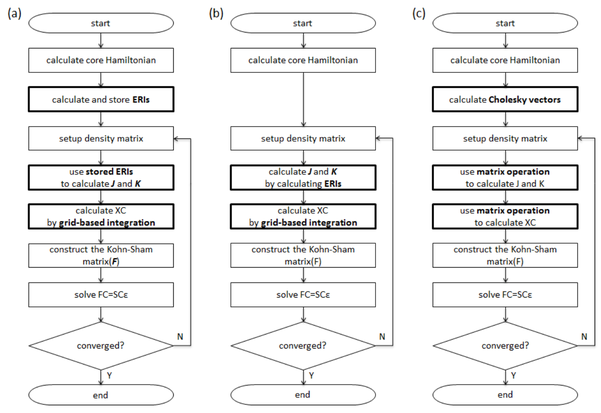
Mizoguchi Lab.

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.

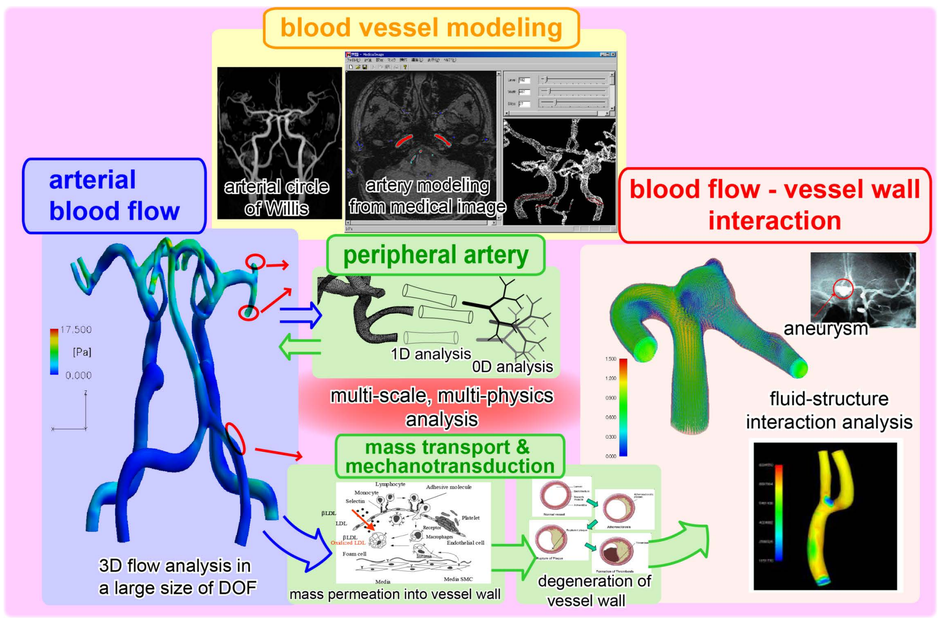
Atomistic modeling of interface of NdFeB (neodymium magnet)



Sato Lab.

Schematic representing (a) FILE, (b) direct, and (c) the 3rd-genenration DFT methods of calculating SCF.
(T. Hirano, F. Sato, *PCCP*, 2014, 16, 14496.)

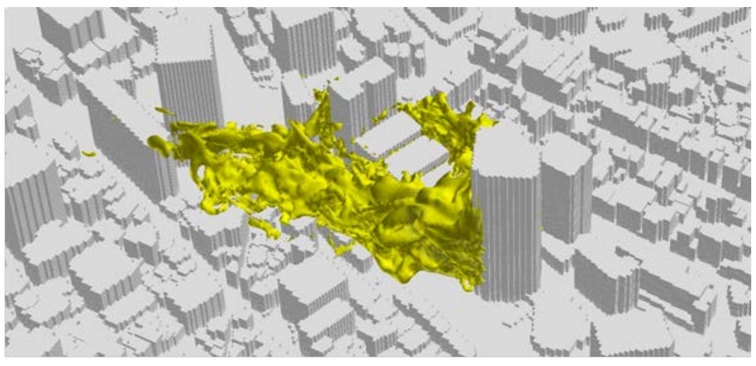
Medical Support



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