

## **Center for Research on Innovative Simulation Software** [Introduction]

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

Advanced research on simulation software

## Since January 2008

## **Purpose of CISS**

- Conducting world-leading advanced research on simulation software
- Disseminating R&D results to society
- Strengthening the educational foundation for training human resources capable of developing and using simulation software

To conduct R&D on the advanced and practical computational science simulation software needed for the 21th century, we are collaborating with researchers within and outside the university while responding to the needs of the industry.

## Main theme

- (1) Analysis of large-scale proteins based on quantum chemical simulation
- (2) Onset and prognosis of aneurisms and arteriosclerosis based on interaction analysis between blood flow and vessel walls in the human body
- (3) Property prediction of nano devices based on first-principle calculations
- (4) Development of general-purpose coupled analysis software to support a framework of innovation in the field of manufacturing
- (5) Based on computational science, development of urban safety simulation software to promote safety during a disaster









a) Wall shear stress distribution All-electron B3LYP calculation on photosynthetic reaction

b) Distribution of flow rates Blood flow simulation of multi-scale circle of Willis considering the effects of peripheral vessels OSHIMA, M. Lab.

Multi-physics multiscale simulation



center protein around six pigments including special pair

SATO, F. Lab.

Malti-scale damage estimation of CFRP pressure vessel YOSHIKAWA, N. Lab.



Stream lines in a simplified server model and temperature distribution on its inner surface KATO, C. Lab.

Framework of HPC/PF erformance Computing Platform) HATADA, T. Lab.

Simulation System for urban

nvironment and Safety

Evaluation of ventilation performance

KATO, S. Lab.

Application Lineup

in a basement with areaway space by CFD

**DB** System

Institute of Industrial Science