F. Sato LAB.

[Innovative Simulation on Proteins]

Center for Research on Innovative Simulation Software

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

Computational Biomolecular Science

Engineering/
Mechanical Engineering

All-Electron Calculations on Proteins by ProteinDF

The new quantum chemical calculation software "ProteinDF" has been developed, where molecular orbitals of all electrons of proteins are computable.

Based on the software, a practical simulation system that precisely analyzes biomolecular reactions is now constructed for the applied research such as design of new enzymes and medicines as well as for the fundamental researches.

Light Energy Collection
As a solar energy effective use device by catching the wide wavelength light energy
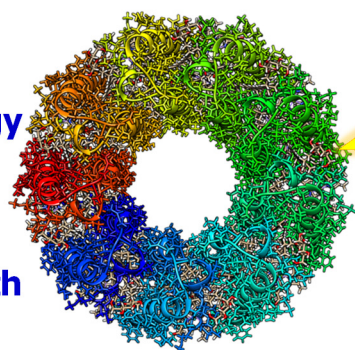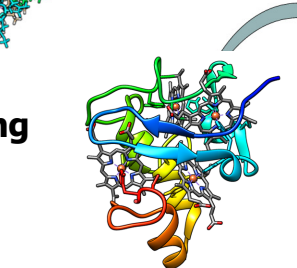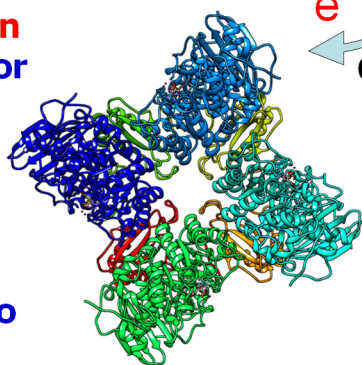
Light-Harvesting Complex

Photoelectric Conversion
As a practical bio-power generation system by taking out an electron directly
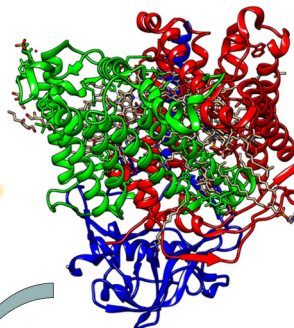
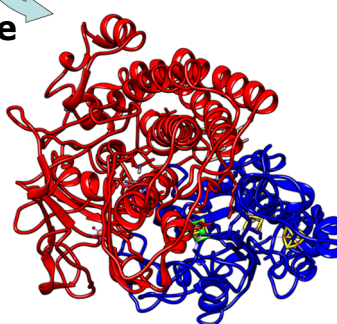**Photosynthetic Reaction center**

e^- e^-

Cytochrome

Carbon Fixation
As a solution for CO_2 reduction, food, and biofuel problems by developing perfect Rubisco

Rubisco

Hydrogen generation
As the clean device which carries out manufacture of hydrogen by acquisition of oxygen tolerance capability

Hydrogenase