Division of Mathematical and Physical Sciences	Research field	Theoretical and Computational Nanoscience	Lab. ID MP20
Laboratory web site	http://cphys.s.kanazawa-u.ac.jp/~oda-web/index-eng.html		

Research subjects

Recent topics on "Theoretical and Computational Nanoscience (Computational science in several fields of physics)": Surface/interface physics, nanosicence, magnetic properties of materials, crystal growth, theoretical material physics, computational solid state physics, electron correlation, etc. We may use first-principles electronic structure calculation and first-principles molecular dynamics, classical moleculardynamics, Monte Carlo method, etc. By using computers, we aim the analysis/understanding/prediction/design/modeling on the nature phenomena or new materials/devices. We may use (massively) parallel computers and supercomputers. We may also develop methods or implement program codes for simulation based on solid state physics, if need for investigation. We are also interested in electronic structures of metals, semiconductors, magnets, molecules, and clusters including interstellar ones.

Master/Doctor course: Education policy, curriculum, typical activity in the laboratory

Master course students take lectures and join seminars(meetings of research presentation, journal review, text-book reading, etc). Conduct research of each research topics and complete master's theses. Doctoral students conduct research under supervisors and complete doctoral theses. Regardless of the degree (master or doctor), the students are strongly recommended to present the results of research in the related conference/workshop and also to publish them in an academic journal. The students are also recommended to contribute an administrative works on the computer/network system.

Daily life in the laboratory, etc.

PC is assigned to each student. Students can use supercomputers in other universities and thus carry out large-scale numerical simulation. Students are recommded to use/apply massively parallel computers(supercomputers).

Message or comments by the laboratory faculty staffs

Computational science is the third science in addition to expeimental and theoretical sciences. We hope that students conduct reserch of this new science with special interests. We believe that the nanoscience which is a science of nano-meter scale has a region consisting of unknow targets and one can conduct an interesting study due to the properties of nano-scale. For examples, one can find a new property in the material, creat a new functionality in an application material. Due to the new field of nanoscience, you may find a new concept which has never been considered before in the world, or creat a new system which has been never made so far. Challenge a study on computational nanoscience with us using the state-of-the-art in computing.

Laboratory mail address	Tatsuki Oda <oda *at* cphys.s.kanazawa-u.ac.jp>