

External Review

on Center for Computational Sciences,

University of Tsukuba

Date: October 30th, 31st, November 1st, 2007

Place: Center for Computational Sciences, University of Tsukuba
(<http://www.ccs.tsukuba.ac.jp>)

External Review Committee:

Chair: Prof. Richard Kenway, The University of Edinburgh
Vice Chair: Prof. Yoshio Oyanagi, Kogakuin University
Prof. Michael L. Norman, University of California, San Diego
Prof. Kiyoyuki Terakura,
Japan Advanced Institute of Science and Technology
Prof. Akimasa Sumi, The University of Tokyo
Prof. Herve Philippe, University of Montréal
Dr. Horst Simon, Lawrence Berkeley National Laboratory
Prof. Masaru Kitsuregawa, The University of Tokyo

Schedule:

* 30th October (Tuesday) * -----

9:30-10:00	Welcome (Sato, Director of CCS) Objective and schedule of the external review
10:00-10:30	Overview and current status of CCS (Sato)
10:30-11:00	Activities and results 2004 – 2007 (Ukawa)
11:00-11:30	CCS project 1: PACS-CS project (Boku)
11:30-12:00	CCS project 2: FIRST project (Umemura)
12:00-12:30	Tour to PACS-CS and FIRST
12:30-14:00	Lunch
14:00-14:25	CCS project 3: ILDG/JLDG project (Sato)
14:25-14:50	Activities and Collaborations 1: Division of Particle Physics and Astrophysics: Computational Particle Physics Group (Aoki)
14:50-15:15	Activities and Collaborations 2: Division of Global Environment and Biological Sciences: Global Environmental Science Group (Tanaka)
15:15-15:40	Activities and Collaborations 3: Division of Computational Informatics: Computational Intelligence Group (Kitagawa)
15:40-16:05	Activities and Collaborations 4: Division of Computational Informatics: Computational Media Group (Ohta)

16:05-16:30 Coffee break

16:30 -18:00 Parallel Tracks

Track 1 (Reviewers: Oyanagi, Simon and Kitsuregawa) : **Workshop room**

Division of High Performance Computing Systems

16:30-16:35 Group introduction (T. Boku)

16:35-16:50 Low-power and high-performance cluster network (T. Boku)

16:50-17:15 Gfarm distributed file system (O. Tatebe)

17:15-17:40 FFT-E and math-library (D. Takahashi)

17:40-17:50 Student presentation (1) (Y. Nakajima)

17:50-18:00 Student presentation (2) (Y. Hotta)

Track 2 (Reviewers: Kenway and Norman): **Meeting room A**

Division of Particle Physics and Astrophysics

16:30-17:00 Dynamical Wilson quark simulations towards the physical point
(Y. Kuramashi)

17:00-17:15 Nuclear force from lattice QCD (N. Ishii)

17:15-17:30 Warm-Hot Intergalactic Medium / SIMD Acceleration of
Astrophysical Simulations (Kohji Yoshikawa)

17:30-17:45 High Resolution Simulation of First Generation Star
Formation(Tamon Suwa)

17:45-18:00 Formation and Dynamical Evolution of Globular Cluster(Kenji
Hasegawa)

Track 3 (Reviewers: Sumi and Philippe): **Meeting room B**

Division of Global Environment and Biological Science

16:30-16:50 Can we include EF2 in multigene phylogenetic analyses? (Inagaki)

16:50-17:10 Centrohelida is still searching for a phylogenetic home: Analyses
of 7 Raphidiophrys contractilis genes (Sakaguchi)

17:10-17:20 Prediction of water resource variation in winter under the global
warming: Case studies in Japan and Turkey (Kimura, F.)

17:20-17:30 Prediction of urban climate using the WRF regional model
(Kusaka, H)

17:30-17:40 Spectral energetics analysis of the general circulation of the
atmosphere in the vertical wavenumber domain (Terasaki, K)

17:40-17:50 Evaluation of the accuracy of the ensemble Kalman filter
(Kondo, K.)

17:50-18:00 Arctic Oscillation as a dynamical singular eigenmode of the
atmosphere (Tanaka, H)

18:00-18:30 (Committee meeting)

19:00- (Committee meeting with dinner)

* 31st October (Wednesday) * -----

- 9:30- 9:45 (Committee meeting)
- 9:45-10:10 Activities and Collaborations 5:
Division of High Performance Computing Systems (Boku)
- 10:10-10:35 Activities and Collaborations 6: Division of Materials and Life
Sciences: Computational Condensed Matter Science Group (Oshiyama)
- 10:35-11:00 Activities and Collaborations 7: Division of Materials and Life
Sciences: Computational Life Science Group (Tateno)
- 11:00-11:15 Coffee break
- 11:15-11:40 Activities and Collaborations 8: Division of Materials and Life
Sciences: Quantum Many-Body Systems Group (Yabana)
- 11:40-12:05 Activities and Collaborations 9: Division of Global Environment and
Biological Sciences: Biological Science Group (Hashimoto)
- 11:05-12:30 Activities and Collaborations 10: Division of Particle Physics and
Astrophysics: Computational Astrophysics Group (Umemura)
- 12:30-14:00 Lunch
- 14:00-15:00 Future plan of CCS (Sato)
- 15:00-15:30 Discussion
- 15:30-16:00 Coffee break
- 16:00-18:00 Parallel Tracks
- Track 1 (Reviewers: Oyanagi, Simon and Kitsuregawa) : **Workshop room**
Division of Computational Informatics
- 16:00-16:45 1) Research Activities in Computational Intelligence Group
Hiroyuki Kitagawa, Toshiyuki Amagasa, Hideyuki Kawashima,
Yousuke Watanabe, Jianwei Zhang
- 16:45-17:30 2) Research Activities in Computational Media Group
Yuichi Ohta, Yoshinari Kameda, Itaru Kitahara
- 17:30-18:00 3) Free Discussion with Young Researchers
- Track 2 (Reviewers: Kenway and Norman): **Meeting room A**
Division of Particle Physics and Astrophysics
- 16:00-16:20 η ' meson mass from lattice QCD (T. Yoshie)
- 16:20-16:40 Lattice QCD calculation of the ρ meson decay width
(N. Ishizuka)
- 16:40-17:00 Non-perturbative renormalization of four-quark operators and
 B_K with SF scheme in quenched domain-wall QCD

- (Y. Taniguchi)
- 17:00-17:15 Radiative Magnetohydrodynamic Accretion Flows and Jets
(Yoshiaki Kato)
- 17:15-17:30 High-Redshift Metal Enrichment Traced by Extinction Curves
(Hiroyuki Hirashita)
- 17:30-17:45 Study of Two Temperature and Non-Equilibrium Ionization
States of Plasma in Merging Galaxy Clusters (Takuya Akahori)
- 17:45-18:00 Novel Picture for Lyman Alpha Emitters (Ikkoh Shimizu)

Track 3 (Reviewers: Terakura, Sumi and Philippe): Meeting room B

Division of Materials and Life Sciences

(Material Science Group)

- 16:00 - 16:05 Overview (Atsushi Oshiyama)
- 16:05 - 16:25 Prediction of New Properties in Carbon Nano-Materials (Susumu
Okada)
- 16:25 - 16:40 Developments and Applications of Real-Space Density Functional
Theory (RSDFT) (Jun-ichi Iwata)

(Life Science Group)

- 16:40 - 16:50 Towards Construction of Quantum Structural Biology Coupled
with Structural Bioinformatics (Masaru Tateno)
- 16:50-17:05 Development of Computational Methods for Analyses of Enzymatic
Reaction Mechanism and Protein Folding Problem (Yosuke
Hagiwara)
- 17:05-17:20 Dynamical Information Flow Mechanisms Revealed by Computer
Simulations of Cellular Signaling Reaction Network Systems in a
Cell (Tatsunori Nishimura)

(Quantum Many-Body Systems Group)

- 17:20-17:40 Quantum Dynamics in Few-Body System (Xiao-Min Tong)
- 17:40-17:50 Materials with strong electron correlation and strong
electron-phonon interaction (Hiroyasu Koizumi)
- 17:50-18:00 Microscopic Theory of Nuclear Three-dimensional Rotational
Motion (Yukio Hashimoto)

- 18:00-18:30 (Committee meeting)
- 19:00- (Committee meeting with dinner)

* 1st November (Thursday) * -----

- 9:00-10:00 (Committee meeting)
- 10:00-11:00 Discussion, Q & A
- 11:00-12:30 (Committee meeting)

- 12:30-13:30 Lunch