



Workshop on Computational Medical Physics

September 2, 2012

at Nara Prefectural New Public Hall, Nara, Japan

(Organizers: M. Ferenci, R. Howell, B. Kirk, W. Newhauser, T. Sato, P. Vaz, S. Yonai)

Workshop Program

8:30-8:45 Welcome Remarks- Hideo Hirayama (KEK, Japan)

8:45-10:25 Computer Codes (Session Chair: B. Kirk)

8:45-9:10	Namito, Yoshihito (yoshihito.namito@kek.jp)	Current status of EGS5 code
9:10-9:35	Hughes, Grady (hgh@lanl.gov)	Features of MCNP5 relevant to medical radiation physics
9:35-10:00	Sato, Tatsuhiko (sato.tatsuhiko@jaea.go.jp)	An overview of the PHITS code and its application to medical physics
10:00-10:25	Haghighat Ali (haghigha@vt.edu)	Unique formulations in TITAN and PENTRAN for medical physics applications

Break: 10:25-10:45 (20 minutes)

10:45-12:50 Medical Applications (Session Chair: R. Howell, Session Co-chair: S. Yonai)

10:45-11:10	Barros, Silvia (silviabarros@itn.pt)	Prostate brachytherapy dosimetry using voxel phantoms
11:10-11:35	Tanaka, Kenichi (tanakaken@sapmed.ac.jp)	Benchmark of egs5 for 125I brachytherapy in comparison to glass rod dosimeter and treatment planning system using AAPM-TR43U1 formalism
11:35-12:00	Zheng, Huaqing (huaqing.zheng@fds.org.cn)	Photon dose calculation based on Monte Carlo finite-size pencil beam model in accurate radiotherapy
12:00-12:25	Wu, Yican (yican.wu@fds.org.cn)	CAD- and image-based Monte Carlo modeling for computational phantom - applications to radiation protection and radiotherapy
12:25-12:50	Prasad, Shikha (shikhap@umich.edu)	Developments in statistical image reconstruction algorithms for computed tomography

12:50-14:00: Lunch (1 hour and 10 minutes)

14:00-16:00 Computational Phantoms (Session Chair: M. Sutton-Ferenci, Session Co-chair: T. Sato)

14:00-14:25	Moigner, Alexandra (alexandra.moignier@irsn.fr)	Potential of hybrid computational phantoms in radiotherapy for heart and coronaries dosimetry
14:25-14:50	Becker, Frank (frank.becker@kit.edu)	Application of hand phantoms in simulations to determine the radiation exposure of medical staff
14:50-15:15	Aso, Tsukasa (aso@nagaokaut.ac.jp)	A GEANT4 based particle therapy simulation framework for verification of dose distributions in proton therapy facility
15:15-15:40	Speiser, Michael (Michael.Speiser@UTSouthwestern.edu)	Improved CT-based voxel phantom generation for MCNP Monte Carlo
15:40-16:05	Broggio, David (david.broggio@irsn.fr)	Toward quantitative assessment of the morphological similarity of organs' voxel model using geometric and Zernike 3D moments.

Break: 16:05-16:20 (15 minutes)

16:20-17:30 Panel Discussion: The Role of Computing in Medical Physics (Session Moderator: P. Vaz)

Panelists:
Wayne Newhauser, Louisiana State University (newhauser@lsu.edu)
Rebecca Howell, The University of Texas MD Anderson Cancer Center (rhowell@mdanderson.org)
Michele Sutton-Ferenci, Penn State Milton S. Hershey Medical Center (mferenci@hmc.psu.edu)
Ali Haghghat, Virginia Tech (haghgha@vt.edu)
Takumi Gotoh, Nagoya Radiological Diagnosis Foundation (takumigotoh@me.com)

ATTENTION:

1. Speakers can use either PC equipped in the session room or their own laptop PC for the presentation. Please see <http://www.icrs12.org/img/Instructions-oral.pdf> in more detail. The presentation time is 25 minutes (20 minutes to present and 5 minutes for Q&A)
2. The ICRS registration desk will be opened at 12:30 on Sep. 2.
3. Coffee service is available from 9:00 AM in the drawing room. Please take used paper cups back to the coffee service.
4. Please take your rubbish with you.

Thank you for your cooperation.

