

Medical Applications Agenda: Monday March 27, 2017 (afternoon)

Working Group Chairs: Regina Fulkerson (RKF Consultants), Wesley Culberson (Univ. of Wisconsin) and Ronnie Minniti (NIST)

Breakout Session I: Radionuclides for nuclear medicine

- 1:45-2:15 Reid Townson, Ph.D., National Research Council of Canada
Realistic simulation of radionuclide sources in EGSnrc: a predictive model of the Vinten ionization chamber
- 2:15-2:45 Brian Zimmermann, Ph.D., NIST
From Level Scheme To Diagnosis: Nuclear Data And The Development Of Standards For Quantitative Medical Imaging.
- 2:45-3:15 John Keightley, Ph.D., National Physical Laboratory, UK (to be confirmed)
Development of Standards for alpha emitting radionuclides for nuclear medicine
- 3:15-3:30 Questions for speakers and discussion on "current needs"
- 3:30-3:45 Break

Breakout Session II: Radiation Biology and dosimetry

- 3:45-4:15 Wesley Culberson, Ph.D., University of Wisconsin - Madison
Current status of radiobiology dosimetry
- 4:15-4:45 Paul DeJean & Bill McLaughlin, Precision X-Ray
Advances in Pre-Clinical Image Guided X-Ray Irradiation
- 4:45-5:15 Adrian Treverton, Ph.D., Xstrahl Inc
Towards better repeatability and accurate dosimetry in image-guided small-animal irradiators
- 5:15-5:30 Questions for speakers and discussion on "current needs"
- 5:30 Adjourn

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Breakout Session III: Real Time 3D Imaging for Orthopedic Applications

- 1:45-1:55 Introduction to the session by the chairs: *The need for developing 3D imaging tools for evaluating orthotics. How can we improve the current practice?*
- 2:00-2:30 Kevin Wilson, Ph.D., Hologic
Low dose, mini C-arm fluoroscopy for hand and foot applications
- 2:30-3:00 Stuti Singh, Ph.D., Curvebeam
Why Cone Beam CT can make 3D the Standard of Care in Extremity Imaging
- 3:00-3:15 Regina Fulkerson, Ph. D., RKF Consultants
A quick overview of a weight bearing 3D imaging system for horses
- 3:15-3:30 Questions for speakers and discussion on needs in this area
- 3:30-3:45 Break

Breakout Session IV: Proton Relative Biological Effectiveness (RBE)

- 3:45-4:10 Ramin Abolfath, Ph.D., MD Anderson & University of Pennsylvania
Biological Responses of Therapeutic Ionizing Radiation and Charged Particles
- 4:10-4:35 Paige Taylor, M.Sc., MD ANDERSON (IROC)
Proton Therapy National Ion Chamber Intercomparison
- 4:35-5:00 Darshana Patel, Ph.D., MD Anderson
Experimental investigation of RBE as a function of dose and LET
- 5:00-5:25 Michael Butkus, M.S., Yale
Multi-Ion Analysis of RBE using the Microdosimetric Kinetic Model
- 5:30 Adjourn