

## HITSRS2013 Program

May 15, 2013 (Wed)

- 10:00 – 10:20    Opening Ceremony**
- 10:20 – 10:30    Group Photo**
- 10:30 – 11:10    Plenary Lecture 1: @ Main Hall**  
[Chair: Takeo Ohnishi]  
Current Status and Future Prospective of Particle Therapy  
(Tadashi Kamada / NIRS, Japan)
- 11:00 – 11:30    Coffee Break**
- 11:30 – 13:00    Session 1: DNA Repair @ Main Hall**  
[Chair: George Iliakis]
- 11:30 – 11:45    “Detection of Chromosome Aberration by using Histone H2AX-deficient mouse ES cells”, Takashi Morita / Osaka City Univ., Japan
- 11:45 – 12:00    “A role for Reactive Oxygen Species in the resolution of persistent genomic instability after exposure to radiation”, Paul Doetsch / Emory Univ., USA
- 12:00 – 12:15    “Dependence of the yields of AP sites and AP clusters produced in plasmid DNA on scavenging capacity and LET”, Akinari Yokoya / Japan Atomic Energy Agency, Japan
- 12:15 – 12:30    “Telomeric proteins in the radiation/DNA damage response”, Susan Bailey / Colorado State Univ., USA
- 12:30 – 12:45    “The influence of end resection by CtIP on the Artemis dependent DNA double-strand break repair pathway in G1 and G2 phase after high- and low-LET irradiation”, Sandro Conrad / Darmstadt Univ. of Technology, Germany
- 12:45 – 13:00    “Fanconi Anemia Pathway Function in Genome Stability Maintenance in Response to HZE Particles Irradiation”, Aroumougame Asaithamby / Univ. of Texas Southwestern Medical Center, USA
- 13:00 – 14:00    Lunch Break**
- 14:00 – 15:30    Session 2: Cancer Risk @ Main Hall**  
[Chair: Michael Weil]
- 14:00 – 14:15    “Mitochondrial Damage and Radiation Carcinogenesis”, Tom Hei / Columbia Univ., USA
- 14:15 – 14:30    “The Radiation Carcinogenesis NASA Specialized Center of Research (NSCOR)”, Robert Ullrich / Univ. of Texas Medical Branch, USA
- 14:30 – 14:45    “Exposure to <sup>56</sup>Fe radiation leads to increased intestinal tumor frequency and grade – correlating with greater b-catenin activation than g radiation in APC<sup>Min/+</sup> mice”, Albert Fornace Jr. / Georgetown Univ.
- 14:45– 15:00    “Defining the Relative Contribution of Targeted and Non-Targeted Radiation Effects in HZE Carcinogenesis using the Mammary Chimera Model”, Mary

- Barcellos-Hoff / New York Univ.
- 15:00– 15:15 “The Duke Lung Cancer NSCOR: Mouse Models”, Mark Onaitis / Duke Univ. Medical Center, USA
- 15:15– 15:30 “Mammary carcinogenesis after exposure of fetal, neonatal, juvenile and adult rats to  $\gamma$  rays and carbon ions”, Tatsuhiko Imaoka / NIRS, Japan
- 15:30 – 15:50 **Coffee Break**
- 15:50 – 17:20 **Session 3: CNS Risk @ Main Hall**  
[Chair: Livio Narici]
- 15:50 – 16:05 “Low Dose  $^{28}\text{Si}$ ,  $^{56}\text{Fe}$ , and proton irradiation affects hippocampal function”, Jacob Raber / Oregon Health and Science Univ., USA
- 16:05 – 16:20 “In vivo and in vitro studies to evaluate the effects of space-like irradiation on Alzheimer-like deficits”, Xiongwei Zhu / Case Western Reserve Univ., USA
- 16:20 – 16:35 “Total-body low dose irradiation of mice induces neither learning disability and memory impairment in Morris water maze test nor Alzheimer’s disease-like pathogenesis in the brain”, Bing Wang / NIRS, Japan
- 16:35 – 16:50 “Mixed beam particulate irradiation leads to reduced chemokine levels three months after exposure”, John Fike / Univ. of California, USA
- 16:50 – 17:05 “Responses of the Central Nervous System to High LET Radiation: NSCOR Project Highlights”, Gregory Nelson / Loma Linda Univ., USA
- 17:05 – 17:20 “Changes in the hippocampal proteome associated with the induction of Spatial memory impairment by mission-relevant HZE doses”, Richard Britten / Eastern Virginia Medical School, USA
- 17:20 – 17:40 **Coffee Break**
- 17:40 – 19:30 **Poster Introduction @ Main Hall**  
[Chair: Teruaki Konishi and Marianne Sowa]  
(All poster presenters have 1 minute for a short presentation with ONE slide.)
- 19:30 – 21:00 **Poster Session with Drink and Food**

May 16<sup>th</sup>, 2013 (Thu)

- 09:30 – 10:10 Plenary Lecture 2: @ Main Hall**  
[Chair: Francis Cucinotta]  
Radiobiology of Heavy Ions in Space and Therapy  
(Eleanor Blakely / Lawrence Berkeley National Laboratory, USA)
- 10:10 – 11:40 Session 4: Facilities of Ion Beam Cancer Therapy @ Main Hall**  
[Chair: Kouji Noda]
- 10:10 – 10:25 “New Treatment Research Facility at NIRS”, Toshiyuki Shirai / NIRS, Japan  
10:25 – 10:40 “Development of a compact superconducting rotating-gantry for heavy-ion therapy”,  
Yoshiyuki Iwata / NIRS, Japan  
10:40 – 10:55 “Treatment Planning System for scanning method”, Taku Inaniwa / NIRS, Japan  
10:55 – 11:10 “Carbon Therapy at Gunma University”, Tatsuaki Kanai / Gunma Univ., Japan  
11:10 – 11:25 “Status of the current facilities in Europe”, Marco Durante / GSI, Germany  
11:25 – 11:40 “Preparations for a particle therapy facility in Norway”, Camilla Stokkevåg /  
Haukeland Univ., Norway
- 11:40 – 12:00 Coffee Break**
- 12:00 – 13:31 Session 5: Clinical Results of Ion Beam Therapy @ Main Hall**  
[Chair: Hiroshi Tsuji]
- 12:00 – 12:13 “Carbon Ion Radiotherapy in a Hypo-fractionation Regimen for Stage I Non-Small  
Cell Lung Cancer”, Wataru Takahashi / NIRS, Japan  
12:13 – 12:26 “Up-to-date Results of Carbon-ion Radiotherapy for Prostate Cancer”, Takuma  
Nomiya / NIRS, Japan  
12:26 – 12:39 “Carbon ion Radiotherapy for locally advanced adenocarcinoma of the uterine  
cervix”, Masaru Wakatsuki / NIRS, Japan  
12:39 – 12:52 “Carbon-ion therapy for patients with recurrent rectal cancer”, Makoto Shinoto /  
NIRS, Japan  
12:52 – 13:05 “Correlation of Osteoradionecrosis with Dosimetric Parameters in Carbon Ion  
Radiotherapy”, Go Sasahara / NIRS, Japan  
13:05 – 13:18 “Carbon Ion Radiotherapy for Unresectable Sacral Chordoma”, Hiroko Akamatsu /  
NIRS, Japan  
13:18 – 13:31 “Carbon-ion therapy for patients with pancreatic cancer”, Kotaro Terashima / NIRS,  
Japan
- 13:31– 15:00 Lunch on Seminar by Toshiba @ Keyaki Room (6F)**
- 15:00 – 16:30 Parallel Sessions**  
**Session 6: Medical Physics @ Main Hall**  
[Chair: Shigekazu Fukuda]
- 15:00 – 15:15 “Experimental investigation of secondary ions for carbon ion therapy monitoring”,

Maria Martisikova / Heidelberg Univ. Clinic, Germany

- 15:15 – 15:30 “Measurement of neutron ambient dose equivalent in carbon-ion radiotherapy with active scanned beam”, Syunsuke Yonai / NIRS, Japan
- 15:30 – 15:45 “AO-10-IBER-16 – Ground based radiation field simulation of the MATROSHKA experiment: Physical and Biological Experiments for Radiation Risk Assessment - PART II”, Thomas Berger / DLR, Germany
- 15:45 – 16:00 “Study of carbon ion fragmentation in different materials using a highly flexible set-up”, Maria Martisikova / Univ. Hospital Heidelberg, Germany
- 16:00 – 16:15 “Systematic measurements of lineal energy distributions of various energetic heavy ion beams using a wall-less tissue equivalent proportional counter”, Shuichi Tsuda / Japan Atomic Energy Agency, Japan
- 16:15 – 16:30 “Fragmentation of  $^{56}\text{Fe}$  on C, Al and  $\text{CH}_2$  targets at 471 A MeV”, Dong-Hai Zhang / Shanxi Normal Univ., China

### **Session 7: Non-Cancer Risk @ Kaede Room**

[Chair: Kathryn Held]

- 15:00 – 15:15 “Modeling Analysis of the Dynamics of Thrombocytopoietic, ranulocytopoietic, and Erythropoietic Systems in Irradiated Humans”, Olga Smirnova / Federal State Unitary Enterprise, Russia
- 15:15 – 15:30 “Radiation-Associated Cardiovascular Risks for Future Deep-Space Missions”, David Goukassian / Tufts University School of Medicine, USA
- 15:30 – 15:45 “Electrophysiologic and Molecular Characteristics of Cardiomyocytes after Heavy Ion Irradiation in the frame of the ESA IBER-10 Program”, Johannes Frieß / Univ. of Applied Sciences, Germany
- 15:45 – 16:00 “Heavy-ion ( $^{56}\text{Fe}$ ) Irradiation Leads to Impaired Aortic Relaxation Prior to Atherosclerotic Plaque Formation in ApoE  $^{-/-}$  Mice”, Dennis Kucik / Univ. of Alabama at Birmingham, USA
- 16:00 – 16:15 “Inhibition of angiogenesis by ion particles: Two distinct mechanisms dependent on Linear Energy Transfer”, Peter Grabham / Columbia Univ., USA
- 16:15 – 16:30 “Lifespan shortening after exposure of mice to gamma-rays or carbon ions during fetal, childhood and adult periods”, Shizuko Kakinuma / NIRS, Japan

**16:30 – 16:50 Coffee Break**

**16:50 – 18:20 Parallel Sessions  
NASA Session @ Main Hall**

[Chair: Francis Cucinotta]

- 16:50 – 17:05 “Neuronal stress following exposure to  $^{56}\text{Fe}$  particles and the effects of antioxidant-rich diets”, Barbara Shukitt-Hale / Tufts University School of Medicine, USA
- 17:05 – 17:20 “Adult Hippocampal Neurogenesis is Similarly Decreased By Fractionated vs. Non-fractionated Exposure to High-LET  $^{56}\text{Fe}$  HZE Particle Radiation”, Phillip Rivera / University of Texas Southwestern Medical Center, USA
- 17:20 – 17:35 “NASA Virtual Systems Radiobiology Teams”, Janice Pluth / Lawrence Berkeley National Laboratory, USA
- 17:35 – 17:50 “Genotoxicity of Charged Particles of Importance in Space Flight Using Murine

Kidney Epithelial Cells”, Amy Kronenberg / Lawrence Berkeley National Laboratory, USA

17:50 – 18:05 “Epigenetic and Genomic Alterations in Radiation Induced Genomic Instability”, Janet Baulch / Univ. of California, USA

### **IBIBAM and IOL Session @ Kaede Room**

(Chair: Marco Durante and Ryuichi Okayasu)

16:50 – 17:05 Shigeru Yamada / NIRS, Japan

17:05 – 17:20 Ryuichi Okayasu / NIRS, Japan

17:20 – 17:35 Akira Fujimori / NIRS, Japan

17:35 – 17:50 Yoshya Furusawa / NIRS, Japan

17:50 – 18:05 Yukio Uchihori / NIRS, Japan

18:20 – 18:30 **Coffee Break**

18:30 – 20:00 **Parallel Sessions**

### **IBER Investigators Meeting @ Main Hall**

[Chair: Oliver Angerer]

18:30 – 18:45 “Investigations into Biological Effects of Radiation (IBER) on the central nervous system, as analyzed in embryonic chicken retina”, Paul Layer / Darmstadt Univ. of Technology, Germany

18:45 – 19:00 “AO-10-IBER: Repair of DNA double strand breaks induced by  $\delta$ -electrons of high-LET radiation - Does low dose matter?”, Johanna Mirsch / Darmstadt Univ. of Technology, Germany

19:00 – 19:15 “DNA damage response differs in stem/progenitor and differentiated cells of the human hematopoietic system”, Claudia Fournier / GSI, Germany

### **JASRR Investigators Meeting @ Kaede Room**

[Chair: Takeo Ohnishi]

18:30 – 20:00

**May 17<sup>th</sup>, 2013 (Fri)**

- 09:30 – 10:10 Plenary Lecture 3: @ Main Hall**  
[Chair: Marco Durante]  
Countermeasure in Space Radiation  
(Francis Cucinotta / NASA-JSC, USA)
- 10:10 – 11:40 Session 8: Bystander and other Low Dose Effect @ Main Hall**  
[Chair: Tom Hei]
- 10:10 – 10:25 “Risk Assessment of Radiation Induced Invasive Cancer in Mouse Models of Lung and Colon Cancer”, Jerry Shay / Univ. of Texas Southwestern Medical Center, USA
- 10:25 – 10:40 “Response of Irradiated and Bystander Cells to Charged Particles in 2D and 3D Colon Models”, Kathryn Held/ Massachusetts General Hospital, USA
- 10:40 – 10:55 “Chromosomal Aberrations in Human Lymphocytes and Fibroblasts after Exposure to Very Low Doses of High-LET Radiation”, Megumi Hada / USRA, USA
- 10:55 – 11:10 “Nitric Oxide Is a Key Molecule Serving as a Bridge between Radiation-Induced Bystander and Adaptive Responses”, Hideki Matsumoto / Univ. of Fukui, Japan
- 11:10 – 11:25 “Short-and Long-Term Effects from the Communication between Carbon-Irradiated Cancer Cells and Non-Irradiated Human Fibroblasts: Implication for Radiotherapy and Space Radiation”, Narongchai Autsavapornporn / NIRS, Japan
- 11:25 – 11:40 “Radiation-quality dependent bystander effects induced by the microbeams with different radiation sources”, Masao Suzuki / NIRS, Japan
- 11:40 – 12:00 Coffee Break**
- 12:00 – 13:30 Session 9: Cellular Signaling following Particle Exposure @ Main Hall**  
[Chair: Sylvia Ritter]
- 12:00 – 12:15 “A Key Role for Caspase 3 in Space Radiation Induced Mutagenesis and Carcinogenesis”, Chuan-Yuan Li / Duke Univ., USA
- 12:15 – 12:30 “The Contribution of NF- $\kappa$ B to Cellular Radiation Response after Heavy Ion Exposure”, Christa Baumstark-Kahn / DLR, Germany
- 12:30 – 12:45 “The effect of X-rays and C-ions on pluripotent embryonic stem cells<sup>†</sup>”, Sabine Luft / GSI, Germany
- 12:45 – 13:00 “A microRNA network functioning in the regulation of radiobiological effects”, Guangming Zhou / Institute of Modern Physics, China
- 13:00 – 13:15 “Gene expression and cytokine monitoring for biodosimetry and radiation sensitivity screening (ESA IBER-3 project GYMBRASS)”, Moreels Marjan / SCK-CEN, Belgium
- 13:15 – 13:30 “Altered Autocrine Signaling in Human Vascular Endothelial Cells Exposed to High and Low LET Radiation”, Mohan Natarajan / Univ. of Texas Health Science Center, USA
- 13:30 – 15:00 Lunch Break**

- 15:00 – 16:30      Session 10: Biological Effectiveness of Particle Therapy @ Main Hall**  
 [Chair: Claudia Fournier]
- 15:00 – 15:15      “Hsp90 inhibitor is a good candidate for effective combination therapy with carbon ions“, Ryuichi Okayasu / NIRS, Japan
- 15:15 – 15:30      “Glioma stem cells: RBE of heavy ion irradiation“, Carola Hartel / GSI, Germany
- 15:30 – 15:45      “In vivo radiobiological assessment of the CNAO clinical carbon beams“, Yoshiya Furusawa / NIRS, Japan
- 15:45 – 16:00      “LET-dependent biological effect of DNA DSB repair on cell killing“, Akihisa Takahashi / Gunma Univ., Japan
- 16:00 – 16:15      “Carbon Ion Beams Are Effective in Targeting Cholangiocarcinoma Stem-Like In Vitro and In Vivo“, Sei Sai / NIRS, Japan
- 16:15 – 16:30      “Elucidating the Mechanisms Behind Late Lung Injury after Carbon Ion Beam Irradiation“, Takashi Shimokawa / NIRS, Japan
- 16:30 – 16:50      Coffee Break**
- 16:50 – 18:20      Session 11: Space Dosimetry and Environment @ Main Hall**  
 [Chair: Eric Benton]
- 16:50 – 17:05      “The MATROSHKA experiment on board the International Space Station – Mission Summary and Data Comparison“, Guenther Reitz / DLR Institute of Aerospace Medicine, Germany
- 17:05 – 17:20      “Study of Dose Distribution in a Human Body in ISS Compartments with the Tissue-Equivalent Spherical Phantom“, Vyacheslav Shurshakov / Institute of Biomedical Problems, Russia
- 17:20 – 17:35      “Space Radiation Dosimetry onboard the ISS Japanese Experiment Module ‘KIBO‘“, Aiko Nagamatsu / JAXA, Japan
- 17:35 – 17:50      “Medipix-Based Active Detector Measurements On-Board the ISS“, Lawrence Pinsky / Univ. of Houston, USA
- 17:50 – 18:05      “Measurements of Cosmic rays and Radiation Environment inside and outside the International Space Station with Pamela, Sileye-3/Alteino and Altea Detectors“, Marco Casolino / Roma Univ., Italy
- 18:05 – 18:20      “Verification of shielding effect for space radiation due to water-filled tools using passive dosimeters“, Satoshi Kodaira / NIRS, Japan
- 18:20 – 19:00      Transportation to Symposium Dinner Venue (Chiba Minato)**
- 19:00 – 21:00      Conference Dinner @ Ocean Table**

**May 18<sup>th</sup>, 2013 (Sat)**

- 09:30 – 10:10    Plenary Lecture 4: @ Main Hall**  
[Chair: Yukio Uchihori]  
  
Current Situation of Radiation Contamination from Accident of Fukushima Daiichi Power Plant  
(Nobuyuki Sugiura / Nuclear Safety Research Association, Japan)
- 10:10 – 11:40    Session 12: Countermeasure and Transportation Code @ Main Hall**  
[Chair: Guenther Reitz]
- 10:10 – 10:25    Withdraw
- 10:25 – 10:40    “Measurements on radiation shielding efficacy of Polyethylene and Kevlar in the ISS (Columbus)”, Livio Narici / INFN, Italy
- 10:40 – 10:55    “Shielding effectiveness of candidate materials for radioprotection in deep-space explorations”, Chiara La Tessa / GSI, Germany
- 10:55 – 11:10    “Acute Effects of Solar Particle Event Radiation”, Ann Kennedy / Univ. of Pennsylvania Perelman School of Medicine, USA
- 11:10 – 11:25    “Evaluating Radiation Repose and Countermeasures for Exposure To Solar Particle Events With Differing Energy-Fluence Profiles”, Keith Cengal / Univ. of Pennsylvania, USA
- 11:25 – 11:40    “Astronaut Dose Estimation Using the PHITS Code in Combination with Realistic Models of the Kibo Module and the MATROSHKA Phantom”, Tatsuhiko Sato / Japan Atomic Energy Agency, Japan
- 11:40 – 12:00    Closing Ceremony**
- 12:15 – 14:30    HIMAC Tour**