3rd INTERNATIONAL WORKSHOP ON SPACE RADIATION RESEARCH
and
15th ANNUAL NASA SPACE RADIATION HEALTH INVESTIGATORS' WORKSHOP
May 16-20, 2004
Danfords on the Sound
Port Jefferson, New York

A Map to the Future

PRELIMINARY PROGRAM (April 29, 2004)

Sunday, May 16

1:00 pm – 3:00 pm	***Registration, Diplomatic Room Foyer, Bldg. G***	
3:00 pm – 6:20 pm	***Opening Plenary Session, Diplomatic Reception Room*** ***Chairs: Derek Lowenstein and Walter Schimmerling***	
3:00 pm – 3:05 pm	Walter Schimmerling U.S.A. S. John Gatley U.S.A.	*Introduction*
3:05 pm – 3:20 pm	Praveen Chaudhari Director, Brookhaven National Laboratory	*Welcome*
3:20 pm – 3:50 pm	Eric Hall U.S.A.	*Individual Radiation Sensitivity and Its Relevance to Space Radiation Risk Assessments*
3:50 pm – 4:20 pm	Marco Durante Italy	*Biomarkers of Space Radiation Risk*
4:20 pm – 4:50 pm	Break	
4:50 pm – 5:20 pm	John Gatley U.S.A.	*Neuroimaging and Neurotoxicology*
5:20 pm – 5:50 pm	Ryuichi Okayasu Japan	*Exploring the Biological Effects of High LET Radiation with a Sensitive Assay*
5:50 pm – 6:20 pm	Francis A. Cucinotta U.S.A.	*Radiobiology Research Products for Space Exploration*
6:30 pm – 8:30 pm	***Welcoming Dinner, Brookhaven Room, Bldg. A***	
8:30 pm – 10:00 pm	**Poster Set Up** **Bayles and Willse Rooms, Bldg. E**	

Monday, May 17

8:00 am – 10:55 am — ***Plenary Session, Diplomatic Reception Room, Bldg. G***
Radiation Carcinogenesis and Genomic Instability
Chairs: Mauro Belli and Antone Brooks

8:00 am – 8:25 am	Robert Ullrich U.S.A.	*Overview of Leukemia NSCOR*
8:25 am – 8:40 am	Y. Zhao U.S.A.	*Downregulation of Betaig-H3 Gene Is Involved in the Tumorigenic Process of Human Bronchial Epithelial Cells Induced by Heavy Ion Irradiation*
8:40 am - 8:55 am	Polly Chang U.S.A.	*Impact of Trp53 Genetic Background on Particle Radiation-Induced Genetic Damage in Vivo*
8:55 am – 9:10 am	John Ford U.S.A.	*Radiation Responses of a Perfused Tracheal Tissue*
9:10 am – 9:25 am	Lora Green U.S.A.	*Response of Thyroid Tissue Units to Space-Like Radiation: Comparison of Acute Low-Dose Exposures of Differing LET*
9:25 am – 9:40 am	Amy Kronenberg U.S.A.	*Genotoxic Effects of 1 GeV/amu Fe Ions in Mouse Kidney Epithelial Cells*
9:40 am – 9:55 am	T. Kohwi-Shigematsu, U.S.A.	*SATB1 Deficiency Accounts for High Susceptibility to Low Dose Radiation*
9:55 am – 10:10 am	Discussion Period	
10:10 am – 10:30 am	Break	
10:30 am – 10:55 am	Peter Demant U.S.A.	*Genetic Control of Individual Risk to Non-hereditary Sporadic Cancers*

10:55 am – 12:00 pm — ***Plenary Session, Diplomatic Reception Room, Bldg. G***
Non-Cancer Risks
Chairs: Betsy Sutherland and Guenther Reitz

10:55 am – 11:10 pm	Eleanor Blakely U.S.A.	*Iron Ion-, Proton-, and X-ray Effects on Human Lens Cell Differentiation*
11:10 am – 11:25 pm	A. Mizota Japan	*Accelerated Ion Irradiation Induced Retinal Response*
11:25 am – 11:40 pm	Xiao Wen Mao U.S.A.	*Quantitative Study of Possible Role of Proton Irradiation In Diabetic-Like Retinopathy*
11:40 am – 12:00 pm	Discussion Period	

12:00 pm – 1:00 pm	***Lunch, Brookhaven Room, Building A***	
1:00 pm – 3:25 pm	***Plenary Session, Diplomatic Reception Room, Bldg. G*** ***Neurological Damage from Space Radiation*** ***S. John Gatley and Takeo Ohnishi***	
1:00 pm – 1:25 pm	Greg Nelson U.S.A.	*CNS NSCOR: Progressive Alterations of Central Nervous System Structure and Function Are Caused by Charged Particle Irradiation*
1:25 pm – 1:40 pm	Bing Wang Japan	*Effects of Prenatal Irradiation on Accelerated Heavy Ion Beam on Postnatal Development in Rats: I. Neurophysiologic Alterations*
1:40 pm – 1:55 pm	Charles Limoli U.S.A.	*Stress Response of Neural Precursor Cells After X-ray and Proton Irradiation*
1:55 pm – 2:10 pm	James Joseph U.S.A.	*Putative Nutritional Protection Against Increased Oxidative Stress Vulnerability from Both Irradiation and Aging*
2:10 pm – 2:25 pm	Peter Guida U.S.A.	*Cytotoxic Effects of HZE Radiation on Human Neural Stem and Neuronal Cells*
2:25 pm – 2:40 pm	Andre Obenaus U.S.A.	*Long-Term Alterations within the Rodent Brain After ^{56}Fe Irradiation: Assessment by Diffusion Weighted Imaging*
2:40 pm – 2:55 pm	Radoslaw Rola U.S.A.	*Indicators of Hippocampal Neurogenesis Are Altered in A Dose-Dependent Manner*
2:55 pm – 3:10 pm	Bernard Rabin U.S.A.	*Preliminary Studies of the Interaction Between Age and Exposure to ^{56}Fe Particles on Selected Behavioral Endpoints*
3:10 pm – 3:25 pm	Discussion Period	
3:25 pm – 3:50 pm	Break	
3:50 pm – 5:30 pm	***Plenary Session, Diplomatic Reception Room, Bldg. G*** ***Rapporteur Summaries of Radiobiology Posters*** ***John Dicello and Vladislav Petrov***	
3:50 pm – 4:15 pm	Amy Kronenberg, Rapporteur U.S.A.	*Molecular and Cellular Responses Posters*
	Francesca Antonelli Italy	*Gamma Rays Induction and Repair of DNA Double Strand Breaks in Human Cells: Dephosphorylation of Histone H2AX and Its Inhibition by Calyculin a*

	Francesca Ballarini Italy	*Chromosome Aberrations Induced by Low Doses of Low- and high-LET Radiation: a Modelling Approach*
	Christa Baumstark-Khan Germany	*Cellular Monitoring of the Nuclear Factor κB Pathway for the Assessment of Space Environmental Radiation*
	Esfandiar Behravesh U.S.A.	*Mutagenecity and Immunohistochemical Evaluation of Monolayer Cell and Three-Dimensional Cell Assemblies Exposed to Heavy Iron Ions*
	Francis Cucinotta U.S.A.	*Computational Molecular Kinetics Model of HZE Induced Cell Cycle Arrest*
	Emma Davis U.K.	*Phosphorylation of Histone H2AX Induced in Mammalian Cells by Different Radiation Qualities: Foci Formation at Low Doses*
	Nirav Desai U.S.A.	*Immunofluorescent Detection of DNA Double Strand Breaks Induced by High-LET Radiation*
	Zelanna Goldberg U.S.A.	*Radiation Risk Assessment in Humans: Defining Biologic Activity of Low LET IR in Tissue*
	John Miller U.S.A.	*Molecular Energetics of Clustered Damage Sites*
	Artem Ponomarev U.S.A.	*Novel Image Processing Interface to Relate DSB Spatial Distribution from Immunofluorescence Experiments to the State-of-the-Art Models of DNA Breakage*
	Lei Ren U.S.A.	*Computational Studies of Ras and P13K*
	Betsy Sutherland U.S.A.	*DNA Damage Clusters in Low Level Radiation Responses of Human Cells*
	Ya Wang U.S.A.	*A Functional Link of ATR and Homologous Recombination*
4:15 pm – 4:40 pm	Michael Weil, Rapporteur U.S.A.	*Radiation Carcinogenesis Posters*
	Yakov Kogan U.S.A.	*NF-κB Activating Proteins as Radioprotectants: Latent TGFβ Produced by Tumor Cells Can Inhibit Apoptosis by Inducing NF-κB*
	Linghao Ding	*Global Gene Expression Profile of Normal*

	U.S.A.	*Human Skin Fibroblast (HSF42) Subjected to HZE Irradiation: a cDNA Microarray Study*
	Manabu Fukumoto Japan	*Analysis of Carcinogenic Mechanisms of Liver Cancers Induced by Chronic Exposure to Alpha-particles from Internally Deposited Thorotrast*
	Tomoo Funayama Japan	*The Cellular Effects Induced by Heavy Ion Microbeam Irradiation*
	Kanji Ishizaki Japan	*Effects of Low-dose-rate Radiation on hTERT-Immortalized Human Cells*
	Munira Kadhim U.K.	*Genomic Instability Studies in Murine Haemopoietic Stem Cells Following Exposure to Ionizing Radiation*
	Chuan-Yuan Li U.S.A.	*The Role of ROS in Radiation-Induced Genetic Instability*
	C. R. Mitchell U.S.A.	*A Quantitative Biomarker Specific for Neutron or HZE Radiation Exposure*
	Kumie Nojima Japan	*HZE Radiation Effect for Hereditary Renal Carcinomas*
	Kanokporn Rithidech U.S.A.	*Analysis of Cell Cycle in Mouse Bone Marrow Cells Following Acute in vivo Exposure to ^{56}Fe Ions*
	Uwe Schneider Switzerland	*Estimation of Radiation Induced Organ Specific Cancer Incidence for Radiotherapy Treatment Planning*
	David Springer U.S.A.	*A Possible Mechanism for Bystander Effects: Mass Spectrometry Characterization of Shed Proteins*
	Masao Suzuki Japan	*Very Low-dose Rate Irradiation of Low-density Charged Particles May Induce Genomic Instability of Mutation in Normal Human Fibroblasts*
	Nancy Turner U.S.A.	*Radiation Enhances Azoxymethane-Induced Colon Cancer Development*
	Gayle Woloschak U.S.A.	*A Paraffin Tissue Bank of Cancer and Control Tissues from a Thousand Animal Irradiation Experiment*
4:40 pm – 5:05 pm	Charles Limoli, Rapporteur U.S.A.	*CNS Cancer and Non-Cancer Effects Posters*

	Catherine Louise Bladen U.S.A.	*Zebrafish as a Model System for Radiation Damage and Radioprotection*
	John Gatley U.S.A.	*On the Use of microPET Imaging to Study Radiation Damage to the Brain*
	Daila S. Gridley U.S.A.	*Acute Effects of Whole-body High-LET Radiation: Leukocyte Activation and Function*
	Vadim Krivokrysenko U.S.A.	*NF-κB Activating Proteins as Radioprotectants: Derivatives of Flagellin from Salmonella Protect Mice from Hematopoietic and Gastrointestinal Radiation Syndromes*
	Shogo Hasegawa Japan	*Effect of Heavy Ion Particle Irradiation on Proliferation and Differentiation of Bone Marrow-derived Osteoblastic Stromal Cells*
	Gregory Nelson U.S.A.	*Genotoxicity and Gene Expression in the Nematode C. Elegans in Response to Charged Particle Irradiation*
	Kumie Nojima Japan	*Effects of Low Dose Particle Radiation to Mouse Neonatal Neurons in Culture*
	Michael Pecaut U.S.A.	*Acute Effects of Whole-Body High-LET Radiation: Population Distributions and Hematology*
	Louis Pena U.S.A.	*Heavy Ion Radiation Sensitivity of CNS Glial Cells in Culture Relative to Low LET X-rays*
	James Reuben U.S.A.	*Effect of Low Dose Gamma Irradiation on the Differentiation and Maturation of Monocyte Derived Dendritic Cells*
	Barbara Shukitt-Hale U.S.A.	*Blueberry or Strawberry Supplementation Can Protect Against Age-like Radiation-induced Behavioral Deficits*
	Marcelo Vazquez U.S.A.	*Changes in Cocaine-Stimulated Locomotor Activity Induced by Iron Ion Exposure*
5:05 pm – 5:30 pm	Francesca Ballarini Italy	*Shielding and Physics Posters*
	L. A. Braby U.S.A.	*Characterizing Radiation Quality for Low Level Radiation Exposure*
	M.S. Clowdsley U.S.A.	*Calculation of Radiation Protection Quantities for LEO and Beyond*

Christopher E. Dateo U.S.A.	*Ionization Cross Sections and Dissociation Channels of the DNA Sugar-phosphate Backbone by Electron Collisions*
B. B. Gersey U.S.A.	*Characterization of a Shuttle Style TEPC and Preliminary Results for the Benchmark Evaluations and Analysis of Materials for Shielding (BEAMS) Project*
Irena Gudowska Sweden	*Secondary Particle Production from Heavy-Ion Interactions in Shielding Materials of Interest for Space Missions; Comparison of Monte Carlo Simulations Using SHIELD-HIT with the Experimental Data*
X. Hu U.S.A.	*Application of QMSFRG Model to NSRL Transport Problems*
Winifred M. Huo U.S.A.	*Ionization Cross Sections and Dissociation Channels of DNA Bases by Electron Collisions*
Myung-Hee Y. Kim U.S.A.	*Solar Cycle Variation and Application to the Mean Occurrence Frequency of Solar Particle Events*
Philip T. Metzger U.S.A.	*The Feasibility of Multipole Electrostatic Radiation Shielding*
T. M. Miller U.S.A.	*Extension of the HETC Radiation Transport Code to Include HZE Particle Transport*
Premkumar B. Saganti U.S.A.	*Model Calculations of the Particle Spectrum and Assessment with the Advanced Composition Explorer (ACE) Measurements*
T. Sato Japan	*Applicability of 3-Dimensional Particle and Heavy Ion Transport Code PHITS to the Shielding Design of Spacecraft*
Robert C. Singleterry, Jr. U.S.A.	*Engineering Effort Needed to Design Spacecraft with Radiation Constraints*
Y. Uchihori Japan	*ICHIBAN Intercomparison Program for Space Radiation Instruments at HIMAC, LLUMC, and NSRL*
S. Walker U.S.A.	*Improved Computational Methods for the HZETRN Code*
E. G. Yukihara	*The Potential of Optically Stimulated*

	U.S.A.	*Luminescence as a Personal Dosimetry Method for Astronauts*
	Neal Zapp U.S.A.	*HMD Development: An Event Generator for Monte Carlo Simulation of Heavy Ion Transport*

6:00 pm – 8:00 pm ***Poster Session and Reception, Bayles and Willse Rooms, Bldg. E***

Tuesday, May 18

8:00 am – 6:30 pm	***Posters on Display in Bayles and Willse Rooms, Bldg. E***	
8:00 am – 10:10 am	***Plenary Session, Diplomatic Reception Room, Bldg. G*** ***Molecular and Cellular Responses I*** ***Chairs: Munira Kadhim and Marcelo Vazquez***	
8:00 am – 8:25 am	Mary Helen Barcellos-Hoff U.S.A.	*Interdependence of Cellular and Tissue Stress Responses (NASA NSCOR)*
8:25 am – 8:40 am	Betsy Sutherland U.S.A.	*Complex Space Radiation-induced DNA Damage Clusters in Human Cell Transformation: Mechanisms, Relationships, and Mitigation*
8:40 am – 8:55 am	Les Redpath U.S.A	*Low Dose Suppression of Neoplastic Transformation in Vitro: Preliminary Results with High Energy Protons*
8:55 am – 9:10 am	Andrew Grosovsky U.S.A.	*Mechanisms of Radiation-Induced Recombination Mutagenesis*
9:10 am – 9:25 am	Susan Bailey U.S.A.	*Modulation of Genetic Effects by RNA Interference of NHEJ*
9:25 am – 9:40 am	Takeo Ohnishi Japan	*High-LET Radiation Enhanced P53-independent Apoptosis*
9:40 am – 9:55 am	Tetsuya Kawata Japan	*Caffeine ATM Inhibitor, Sensitizes Non-dividing Human Fibroblasts to Low- and High-LET Radiation by Inducing High Frequency of Chromosome Aberrations*
9:55 am – 10:10 am	Discussion Period	
10:10 am – 10:30 am	Break	
10:30 am – 12:15 pm	***Molecular and Cellular Responses II*** ***Chairs: Amy Kronenberg and Orlando Santos***	
10:30 am – 10:55 am	Carlos de los Santos U.S.A.	*Clustered DNA Lesions: Lesion Orientation Affects Structure and Protein Recognition*
10:55 am – 11:15 am	Peter O'Neill U.K.	*Radiation Quality and the Consequence of Clustered DNA Damage to Biological Response*
11:15 am – 11:30 am	William F. Morgan U.S.A.	*Non-targeted Effects of Ionizing Radiation*
11:30 am – 11:45 am	Kathryn Held U.S.A.	*Comparison of the Radiation-Induced Bystander Effect in Fibroblasts after Treatment with X-rays of Heavy Ions*

11:45 am – 12:00 pm	Bjorn Rydberg U.S.A.	*Relationship between DNA Double-Strand Breaks and Chromosome Breaks in Irradiated and Bystander Cells*
12:00 pm – 12:15 pm	Discussion Period	
12:15 pm – 1:30 pm	***Lunch, Brookhaven Room, Building A***	
1:30 pm – 2:30 pm	***Plenary Session, Diplomatic Reception Room, Bldg. G*** ***Radiation Quality and Biological Studies of Shielding*** ***Chairs: Jack Miller and Hiroshi Yasuda***	
1:30 pm – 1:45 pm	Michael Cornforth U.S.A.	*Both LET and Track Structure Profoundly Influence the Spectra of Chromosome Aberrations Produced in Irradiated Human Cells*
1:45 pm – 2:00 pm	Mauro Belli Italy	*Influence of PMMA Shielding on DNA Fragmentation Induced in Human Fibroblasts by Iron and Titanium Ions*
2:00 pm – 2:15 pm	Marco Durante Italy	*Cytogenetic Effects of High-Energy Iron Ions: Dependence on Shielding Material and Thickness*
2:15 pm – 2:30 pm	Joel Bedford U.S.A.	*Chromosomal Damage by Energetic Iron Particles with or without Shielding*
2:30 pm – 6:30 pm	***Plenary Session, Diplomatic Reception Room, Bldg. G*** ***Dosimetry, Physics, and Shielding*** ***Chairs: James Adams and Marco Durante***	
2:30 pm – 2:55 pm	Guenther Reitz Germany	*Radiation Measurements During ISS Increment 2*
2:55 pm – 3:10 pm	Vyacheslav Shurshakov Russia	*Space Radiation Exposure of Cosmonaut Body During EVA*
3:10 pm – 3:25 pm	Hiroshi Yasuda Japan	*Searching Integrating Dosimeters Suitable for the Determination of Biologically Equivalent Doses from Space Radiation*
3:25 pm – 3:45 pm	Koji Niita Japan	*Particle and Heavy Ion Transport Code; PHITS*
3:45 pm – 4:00 pm	Break	
4:00 pm – 4:20 pm	Lawrence Townsend U.S.A.	*A Simple Method for Solar Energetic Particle Event Dose Forecasting*

4:20 pm – 4:40 pm	Cary Zeitlin U.S.A.	*Shielding, Fragmentation, and NSRL Beam Characterization Studies*
4:40 pm – 5:00 pm	John Wilson U.S.A.	*Validation of Space Radiation Transport Codes*
5:00 pm – 5:15 pm	Gary Qualls U.S.A.	*Male and Female Body Tissue Radiation Shielding Models Based on CT-Scan Data*
5:15 pm – 5:30 pm	Eric Benton U.S.A.	*Beams: Benchmark Evaluations and Analysis of Materials Shielding; MMARS: Multifunctional Analysis of Materials and Shielding for Spacecraft*
5:30 pm – 5:45 pm	Louis Mansur U.S.A.	*Materials Science and Particle Transport Capabilities Applied to Novel and Multifunctional GCR Shielding Materials*
5:45 pm – 6:00 pm	Richard Wilkins U.S.A.	*Development of a Cryogenic Liquid Target for Radiation Shielding Studies*
6:00 pm – 6:10 pm	Kerry Lee U.S.A.	*Helium Cosmic Ray Flux Measurements at Mars*
6:10 pm – 6:20 pm	Ronald Turner U.S.A.	*MARIE Observations of Solar Particle Events*
6:20 pm – 6:30 pm	Giovanni De Angelis Italy	*Modeling of the Martian Radiation Environment*
6:30 pm	Session Adjourns; Evening Free	
6:30 pm – 8:00 pm	**Poster Removal** **Bayles and Willse Rooms, Building E**	

Wednesday, May 19

7:00 am – 8:45 am	Transit, Holiday Inn Express and Danfords to Brookhaven National Laboratory	
8:45 am – 12:00 p.m.	***Brookhaven National Laboratory Session, Snyder Seminar Room Chairs: Francis Cucinotta and Derek Lowenstein***	
8:45 am – 9:05 am	Adam Rusek U.S.A.	*NASA Space Radiation Laboratory*
9:05 am – 9:30 am	Roberto Orecchia Italy	*The Italian Centre for Hadrontherapy – CNAO Status and Perspectives*
9:30 am – 9:55 am	Koichi Ando Japan	*Science at HIMAC*
9:55 am – 10:05 am	Silvia Gerardi Italy	*A Microcollimated Ion Beam Facility for Low Dose Radiation Effects Investigations*
10:05 am – 10:15 am	Viktor Stolc U.S.A.	*NASA Ames Genome Research Facility*
10:15 am – 10:25 am	Livio Narici Italy	*The ALTEA Program: Status of the Project*
10:25 am – 10:40 am	Break	
10:40 am – 12:00 pm		*Users Group Meeting:* *NSRL* *HIMAC* *LLUMC* ***Or*** *Tour of NASA Space Radiation Laboratory at Brookhaven National Laboratory*
Noon – 1:00 pm	Transit, Brookhaven National Laboratory to Bedell Cellars	
1:00 pm – 3:30 pm	Lunch, Bedell Cellars, Cutchogue, New York	
3:30 pm – 4:30 pm	Transit, Bedell Cellars to Danfords and Holiday Inn Express	
6:00 pm – 6:30 pm	Transit, Holiday Inn Express to Danfords	
6:30 pm – 9:30 pm	**Dinner Banquet, Brookhaven Room, Bldg. A**	
	William E. Burrows, Professor of Journalism, New York University; Director, Science and Environmental Reporting Program; Author, *This New Ocean: The Story of the First Space Age*	*The Survival Imperative: Using Space to Protect Earth*

Thursday, May 20

8:00 am – 9:30 am — ***Plenary Session, Diplomatic Reception Room, Bldg. G***
Biomarkers, Sensitivity, and Prevention
Chairs: Greg Nelson and Peter O'Neill

8:00 am – 8:15 am	Sally Amundson U.S.A.	*Gene Expression Profiling of High LET Radiation Exposure*
8:15 am – 8:30 am	Jeff Bacher U.S.A.	~~*Monitoring of Radiation-Induced Genetic Damage*~~ *(Withdrawn)*
8:30 am – 8:45 am	Michael Story U.S.A.	*Analysis of Gene Expression in Human Skin Fibroblasts After Low- and High-LET Radiation Exposures*
8:45 am – 9:00 am	Kerry George U.S.A.	*Biodosimetry Using Chromosome Aberrations in Astronauts Peripheral Blood Lymphocytes: Influences of Clonal Exchanges and Aberration Stability*
9:00 am – 9:15 am	Ann Kennedy U.S.A.	*Countermeasures of Space Radiation Biological Effects*
9:15 am – 9:30 am	Discussion Period	

9:30 am – 12:00 pm — ***Plenary Session, Diplomatic Reception Room, Bldg. G***
Space Exploration Radiation Risk Assessment Roadmap
Chairs: Francis Cucinotta and Walter Schimmerling

9:30 am – 10:00 am	Terri Lomax U.S.A.	*NASA Space Exploration Plans*
10:00 am– 10:15 am	Break	
10:15 am – 10:40 am	Vladislav Petrov Russia	*Mars Risk Assessment Approaches*
10:40 am – 11:05 am	Juergen Kiefer Germany	*A Quantitative Radiation Effect Model Based on Repair-Kinetics*
11:05 am – 11:30 am	Tony Brooks U.S.A.	*Paradigm Shifts in Radiation Biology: Their Impact on Intervention for Radiation Induced Disease*
11:30 am – 12:00 pm		*Discussion of Exploration Issues*
12:00 pm	Adjournment Depart	

Last updated April 29, 2004