

Integration of Physics, Biology and Epidemiology in Radiation Risk Assessment

Monday, March 27, 2023

Opening Session

- 8:10 am **Presentation of the Colors**
Joint Armed Forces Honor Guard
from the Military District of
Washington, DC
- Singing of the National Anthem**
Kimberly Jordan
U.S. Nuclear Regulatory Commission
- 8:15 am **NCRP Welcome**
Kathryn D. Held
President, NCRP
- 8:20 am **Introduction**
Eric J. Grant, *Program Chair*
Emily A. Caffrey, *Program Vice Chair*

Nineteenth Annual Warren K. Sinclair Keynote Address

- 8:30 am **Introduction of the Speaker**
Kathryn D. Held
- What do Risk Modelers Want?
What Can Biologists Provide?**
Michael M. Weil
Colorado State University

Setting the Stage with Epidemiology

Lydia B. Zablotska & S. Robin Elgart,
Session Co-Chairs

- 9:00 am **What Dose-Response Modeling Can, and Cannot, Tell Us About the Biological Mechanisms of Radiation Health Effects**
Dale L. Preston
Hirosoft International
- 9:20 am **Radiation-Related Cardiovascular Disease: Clinical and Epidemiological Studies**
Andrew Einstein
Columbia University

- 9:40 am **Overview of NCRP Report No. 186: Approaches for Integrating Information from Radiation Biology and Epidemiology to Enhance Low-Dose Health Risk Assessment**
R. Julian Preston
U.S. Environmental Protection Agency

10:00 am **Break**

Mechanistic Underpinnings: Cancer and Cardiovascular Disease

Sally A. Amundson & R. Julian Preston,
Session Co-Chairs

- 10:30 am **Low-Dose Effects: Insights from Low and High Linear-Energy Transfer Radiation**
Albert J. Fornace, Jr.
Georgetown University
- 11:00 am **Using Genomics to Investigate Radiation-Related Thyroid Cancer Following the Chernobyl Accident in 1986**
Stephen J. Chanock
National Cancer Institute
- 11:30 am **Precision Medicine with Induced Pluripotent Stem Cells and Application in Space Radiation Risk Assessment**
Joseph C. Wu
Stanford Cardiovascular Institute
- 12:00 pm **Mechanistic Underpinnings for Radiation-Induced Cardiovascular Disease**
Marjan Boerma
University of Arkansas for Medical Sciences
- 12:30 pm **Lunch**

Models and Extrapolations

Mark P. Little & Robert L. Ullrich,
Session Co-Chairs

- 2:00 pm **Human Biosamples for Translational Radiation Studies**
Roy E. Shore
New York University Grossman School of Medicine
- 2:30 pm **An Overview of Approaches for Developing Bioindicators for Risk Estimation at Low Doses and Dose Rates**
Dmitry Klovov
Institute for Radiological Protection and Nuclear Safety, France
- 3:00 pm **Mathematical Modeling Approaches in Oncology: Can Calculus Cure Cancer?**
Helen M. Byrne
University of Oxford
- 3:30 pm **Estimating Radiation Risks at Very Low Doses: Radiobiologists, Epidemiologists and Modelers Can Do this Together**
David J. Brenner
Columbia University
- 4:00 pm **New Technologies Provide Opportunities to Advance Radiation Research**
James A. Lederer
Brigham and Women's Hospital
- 4:30 pm **Break**

Forty-Sixth Lauriston S. Taylor Lecture on Radiation Protection and Measurements

- 5:00 pm **Introduction of the Lecturer**
Jerrold T. Bushberg

Cancer Risks and Public Health Issues Across the Radiation Frequency Spectrum: The Long and the Short of It

Martha S. Linet
National Institutes of Health

- 6:00 pm **Reception**

Tuesday, March 28, 2023

- 8:15 am **NCRP Annual Business Meeting**
- 9:30 am **Break**

Sixth Thomas S. Tenforde Topical Lecture

- 9:45 am **Introduction of the Lecturer**
Eric J. Grant

Towards Evaluating Cell Damage via Microscopy Imaging and Analysis of Cell Organization
Susanne M. Rafelski
Allen Institute for Cell Science

Research Needs for Filling the Gaps

Emily A. Caffrey & Eric J. Grant,
Session Co-Chairs

- 10:15 am **Epidemiology v2.0: Some Ideas for the Path Forward**
Jonine L. Bernstein
Memorial Sloan Kettering Cancer Center
- 10:30 am **Can Artificial Intelligence Improve Risk Assessment for Radiation-induced Adverse Health Outcomes?**
Issam El Naqa
H. Lee Moffitt Cancer Center

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10:45 am **Computational Biology for Future Modeling of Diseases: Is Artificial Intelligence the Way of the Future?**

Afshin Beheshti
National Aeronautics and Space Administration Ames Research Center

11:00 am **Looking Forward: Where Do We Go from Here?**

Simon Bouffler
Public Health England

11:20 am **Panel Discussion:**

Simon Bouffler, *Moderator*
Afshin Beheshti
Jonine L. Bernstein
Issam El Naqa
Susanne M. Rafelski

12:10 pm **Wrap-Up**

Eric J. Grant, *Program Chair*
Emily A. Caffrey, *Program Vice Chair*

12:20 pm **NCRP Vision for the Future and Program Area Committee Activities**

Kathryn D. Held
President, NCRP

12:30 pm **Adjourn**



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