APPLICABILITY OF RADIATION-RESPONSE MODELS TO LOW DOSE PROTECTION STANDARDS

AMERICAN NUCLEAR SOCIETY & HEALTH PHYSICS SOCIETY
JOINT TOPICAL - SEPTEMBER 30 - October 3, 2018
TRI-CITIES, WASHINGTON

Technical Program

Sunday September 30, 2018
B Reactor Concert Sponsored by Bruce Power

Bruce Power
Innovation at work

2:30-3:00 pm Board Buses and Safety Briefing . . . . . Pasco Red Lion
3:00-4:00 pm Travel to B Reactor . . . . . Hanford Site
4:00-5:30 pm Reactor Tour . . . . . B Reactor
5:30-6:45 pm Dinner . . . . . B Reactor
6:45-7:15 pm Seating for Concert, Welcome, and Pre-Concert Presentation . . . . . B Reactor
7:15-8:30 pm Concert . . . . . B Reactor
8:30-8:45 pm Use Restrooms and Board Buses. . . . . B Reactor
8:45-9:45 pm Travel to Hotel . . . . . Hanford Site, Pasco Red Lion

B Reactor was the world's first full-scale nuclear production reactor. It is now part of the Manhattan Project National Historical Park with the mission of telling stories surrounding the Manhattan Project. Managed in partnership by the Department of Energy and the National Park Service, Manhattan Project National Historical Park preserves and interprets the nationally significant historic sites, stories, and legacies associated with the top-secret race to develop an atomic weapon during World War II, and provides access to these sites consistent with the mission of the Department of Energy.

Concert at the Front Face

Sunset at B Reactor

The concert will be a choral performance with the theme of "Democracy". It will be performed by the Mid-Columbia Mastersingers. Ethos Bakery will cater the meal.

Applicability of Radiation-Response Models to Low Dose Protection Standards

Monday October 1, 2018 Morning

8:00-8:15 Welcome and Introductions . . . . . Alan Waltar
8:15-8:30 Goals of the Conference . . . . . Mike Lawrence
8:30-8:40 Society Presidents' Welcome
HPS President Nolan Hertel, ANS Past President Andy Klein

8:40 PLENARY SESSION #1, Opening Session . . . . . Chair: Nick Dainiak

8:40-9:10 Keynote Address:
David Brenner
The Strengths and Weaknesses for linearity in Radiation Risks at Very Low Doses

9:10-9:40 Historical Context:
Roger McClellan
Science and Judgment in Setting Radiation Protection Standards:
Over a Century of Experience

9:40-10:00 BREAK

10:00 PLENARY SESSION #2, Dose-Response Relationships in the Context of Standards for Radiation Protection. . . . . Chair: Christopher Clement

10:00-10:20 NCRP - Report Commentary #27, Implications of Recent Epidemiological Studies for the LNTH Model and Radiation Protection . . . . . Roy Shore

10:20-10:40 ICRP - Status of ICRP Committee 1 on Low Dose and Low Dose Rate Effects for Ionizing Radiation . . . . . Werner Rühm

10:40-11:00 UNSCEAR - Protection Against Low-Dose Radiation: An Evolving International Paradigm for Regulatory Decisions . . . . . Abel Gonzalez and Patricia Wieland

11:00-11:20 IAEA - Radiation Response Models and International Radiation Protection Guidelines . . . . . Oleg Belyakov

11:20-11:40 NRC - The U.S. Nuclear Regulatory Commission's Radiation Protection Policy: What Does it Take for Change? . . . . . Cynthia Jones

11:40-12:00 EPA - Environmental Protection Agency Perspectives on Risk Projections for Exposures to Low Dose Rate Radiation. . . . . David Pawel

12:00 Noon - Luncheon Speaker: Michael Shellenberger
The Making of the Radiation Panic

Sponsored by
ENERGY NORTHWEST

Applicability of Radiation-Response Models to Low Dose Protection Standards

Monday October 1, 2018 Afternoon

1:00-2:00 PANEL #1

Can Regulators Accommodate an Alternative Dose-Response Paradigm?

Moderator: William Magwood

William Sacks . . . . . Radiation Harm vs Hormesis (3 Minutes)
Peter Colgan . . . . . IAEA Safety Standards (3 Minutes)
Antony Hooker . . . . . South Australian Experience (3 Minutes)
Julian Preston
David Pawel

2:00 PLENARY SESSION #3, Epidemiology . . . . . Chair: Barrett Fountos

2:00-2:25 Russian Health Studies . . . . . Barrett Fountos

2:25-2:50 Dosimetry for Mayak and Techa River Populations. . . . . Bruce Napier

2:50-315 Epidemiology of the Mayak and Techa River Populations . . . . . Dan Stram

3:15-3:40 Comparing High and Low Dose Radiation Rates . . . . . Dale Preston

3:40-4:10 BREAK

4:10-5:10 PANEL #2

Epidemiology and Basis for Current Radiation Protection Standards

Moderator: Roger O. McClellan

Richard Bull . . . . . Internal Dosimetry (3 Minutes)
Yutaka Hamaoka. . . . . Analysis of Worker Data (3 Minutes)
Bruce Napier
Dan Stram
Dale Preston

5:10-5:30 The Strategic Low Dose Program of the Canadian Nuclear Utilities - Addressing the Worries and Concerns of the Public. . . . . Nick Priest

5:30 Poster Session and "Walk-Around Dinner/Reception"

Sponsored by Exelon.

Applicability of Radiation-Response Models to Low Dose Protection Standards

Tuesday October 2, 2018 Morning

8:00 PLENARY SESSION #4, Mechanistic Biology and Radiation Standards . . . . . Chair : Doug Boreham

8:00-8:25 Keynote Address

Paradigm Shifts in Radiation Biology
Antone Brooks

8:25-8:45 Molecular Biology and Mechanisms of Action . . . . . Sujeenthar Tharmalingam

8:45-9:05 Radiation Induced Epigenetic Changes . . . . . Randy Jirtle

9:05-9:25 Using Mechanism of Action to Reduce Uncertainty in Risk Estimates . . . . . Julian Preston

9:25-9:45 Molecular, Cellular and Animal Data . . . . . Alia Zander, Stephanie Puukila

9:45-10:20 BREAK

10:20-10:40 Understanding Paracrine Signaling and Stem Cell Function through Computational Modeling . . . . . Nick Dainiak

10:40-11:00 Low Dose Radiation Biology in Canada . . . . . Dmitry Klokov

11:00-12:00 PANEL #3

Can We use Mechanistic Data in Risk Assessment?
Moderator: Ludwig Feinendegen

Ludwig Feinendegen . . . . . Protective Adaptation (3 minutes)
Janet Baulch . . . . . Epigenetics in Brain (3 minutes)
Noy Rithidech . . . . . Delayed Effects Radiation (3 minutes)
Helmut Sies . . . . . Redox Biology (3 minutes)
Tony Brooks

12:00 “Walk-Around” Lunch Visiting Posters

Applicability of Radiation-Response Models to Low Dose Protection Standards

Tuesday October 2, 2018 Afternoon

1:00 PLENARY SESSION #5, The Role of Modeling in Radiation Protection . . . . . Chair: Kathy Higley

1:00-1:20 Keynote Address
Basis for Updating the Limits on Radiation Dose to the Public
Darrell Fisher

1:20-1:40 Arguments Against Linearity at Low Doses . . . . . John Dunn

1:40-2:00 Information Needed to Alter Standards . . . . . Kathy Higley

2:00-2:20 GAO Report: Interagency Collaboration to Improve Health Effects Research . . . . . Allen Chan

2:20-2:40 Radiation Hormesis and Radiation Protection . . . . . Mohan Doss

2:40-3:00 The Case for a Threshold . . . . . Bennett Greenspan

3:00-3:30 BREAK

3:30-4:30 PANEL #4
Models of Dose Response Relationships
Moderator: David Brenner

Jerry Cuttler . . . . . Hormesis and Disease (3 minutes)
Mark Miller . . . . . SARI and its Goals (3 minutes)
Darrell Fisher
Kathy Higley

4:30 PLENARY SESSION #6, Needs in Low Dose Radiation Biology for Medicine and Industry . . . . . Chair: Michael O'Connor

4:30-5:00 Keynote Address
Benefits of the Low Doses of Radiation Delivered in Medical Imaging
Cynthia McCollough

5:00-5:20 The Value of a Human Life . . . . . Jim Conca

5:20-5:40 Public Support for Nuclear Power . . . . . Wade Allison

6:00 BANQUET and POSTERS
Banquet Speaker: William D. Magwood, IV
Science and Values in Radiological Protection

Sponsored by TerraPower

Applicability of Radiation-Response Models to Low Dose Protection Standards

Wednesday October 3, 2018 Morning

8:00 PLENARY SESSION #7, Continuing Needs in Low Dose Radiation Biology for Medicine and Industry . . . . . Chair, Isaf Al-Nabulsi

8:00-8:20 Low Dose Radiation in Space . . . . . Robin Elgart

8:20-8:40 Low Dose Radiation in the Airline industry . . . . . Edward Bramlitt

8:40 PLENARY SESSION #8, Risk Communication, Fear and Regulations . . . . . Chair, Tony Hooker

8:40-9:00 Lessons Learned in Communication from the Fukushima Accident . . . . . Jacques Lochard

9:00-9:20 Connecting Science and Life with Trust . . . . . Ryoko Ando

9:20-9:40 Public Communication after Accidents . . . . . Yuliya Lyamzina

9:40-10:00 Science Must develop Trust and Empathy in the Public . . . . . Ohtsra Niwa

10:00-10:30 BREAK

10:30-11:00 Risk Tradeoffs in Policy Making . . . . . Thomas Hansen

11:00-12:00 PANEL #5

Communication and Policy
Moderator, Paul Locke

Bonne Posma . . . . . An Economics Perspective on Nuclear Reactor Safety (3 minutes)
Ryoko Ando
Thomas Hansen
Ohtsra Niwa
John Dunn

12:00 Noon - Luncheon Speaker: Paul Lorenzini

Radiation, Fear, and Public Policy

Applicability of Radiation-Response Models to Low Dose Protection Standards

Wednesday October 3, 2018 Afternoon

1:00 PLENARY SESSION #9, Scientific Needs to Move Forward in Low Dose Biology and Risk . . . . . Chair, Galye Woloschak

1:00-1:20 Incorporating Low Dose Information into US Laws, Regulations and Policy . . . . . Paul Locke

1:20-1:40 Research Needs in Low Dose Biology . . . . . Dmitry Klokov

1:40-2:00 Needs in Communication. . . . . Nick Priest

2:00-2:20 ICRP Views on Radiation Risk at Low Doses through the Lens of Fukushima. . . . . Christopher Clement

2:20-3:20 PANEL #6

Requirements to update regulations
Moderator: Christopher Clement

Nick Priest
Dmitry Klokov
Mohan Doss
Doug Boreham
Dan Stram
Barrett Fountos
Paul Locke

3:20-3:40 BREAK

3:40-4:40 PANEL #7

Path Forward-- How? and Who Will Have the Action?
Facilitator, Larry Oates

Roger O. McClellan
Werner Rühm
David Pawel
Gayle Woloschak
David Brenner
Antone Brooks
Alan Waltar
Christopher Clement
Ludwig Feinendegen

4:40 Open Discussion to Focus on the Future . . . . . Chair, Alan Waltar

5:00 Summarize Meeting . . . . . Ludwig Feinendegen

Applicability of Radiation-Response Models to Low Dose Protection Standards
Posters

Applicability of Radiation-Response Models to Low Dose Protection Standards
Posters

Applicability of Radiation-Response Models to Low Dose Protection Standards
Posters

Applicability of Radiation-Response Models to Low Dose Protection Standards

Applicability of Radiation-Response Models
to Low Dose Protection Standards