

Low Dose Radiation Risks: Present Research & Future Perspectives

Location: Institute of Molecular Biology NAS Ra, Yerevan, Armenia

Date: March 30th – April 2nd, 2025

This activity is supported by the NATO Science for Peace and Security Programme, the International Union of Radioecology, International Association for Radiation Research (IARR), Institute of Molecular Biology NAS Ra and McMaster University



Science
Biology



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DAY 1 – Sunday March 30th

17:00 – 20:00 Registration and Welcome Reception

DAY 2 – Monday March 31st

08:30 – 09:20 Registration

09:20 – 09:40 Welcome Address, A new future: rational and expected outputs of the ARW
[**Carmel Mothersill**, Canada; **Arsen Arakelyan**, Armenia]

Session 1 – *Low-dose radiobiology and environmental toxicology background* [Chaired
by: **Carmel Mothersill**, Canada]

09:40 – 10:00 Low dose radiobiology [**Carmel Mothersill** Canada]

10:00 – 10:20 Ecosystem approaches in radiation protection [**Francois Brechnigac**,
France]

10:20 – 10:40 Multiple stressor exposures [**Brit Salbu**, Norway]

10:40 – 11:00 Radiation Effects from Internal Body Exposure [**Gayle Woloschak**, USA]

11:00 – 11:10 *Coffee Break*

11:10 – 11:30 Environmental toxicology and transgenerational effects [**Shayenthiran
Sreetharan**, Canada]

11:30 – 11:50 Big Data and its value for modelling environmental effects [**Paul Schofield**,
UK]

11:50 – 12:10 DNA Damage Repair Mechanisms in Ultrashort Pulsed Electron Beam
Irradiation [**Nelli Babayan**, Armenia]

12:10 – 12:30 Open discussion for Session 1

12:30 – 13:30 *Lunch*

Session 2 - *Low-dose effect mechanisms* [Chaired by: **Arsen Arakelyan**, Armenia]



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13:30 – 13:50	DNA radiation damage and repair [Doug Boreham , Canada]
13:50 – 14:10	Impacts of low doses of ionising radiation on the function of the immune system [Dorthe Schaeue , USA]
14:10 – 14:30	Direct and indirect effects of radiation: insights from a multiscale mathematical model [Gibin Powathil , UK]
14:30 – 14:50	Non-targeted effects as biomarkers for environmental radiation effects [Colin Seymour , Canada]
14:50 – 15:15	Open discussion for Session 2
15:15 – 15:30	<i>Coffee Break</i>

Session 3 – Multiple Stressors and markers [Chaired by: **Brit Salbu**, Norway]

15:30 – 15:50	Adaptive responses and multiple stressors. [Marek Janiak , Poland]
15:50 – 16:10	Markers of Radioactivity in Urban Environment [Olga Belyaeva , Armenia]
16:10 – 16:30	DNA Copy Number Variations as Markers of Post-Radiation Mutagenic Impact [Rouben Aroutiounian , Armenia]
16:30 – 16:50	Gene Expression Markers for Low-Dose Particle Radiation [Arsen Arakelyan , Armenia]
16:50 - 17:10	Mechanistic investigation of plant radiosensitivity [Dag Anders Brede , Norway]
17:10 – 17:35	Open discussion for Session 3
17:35 – 19:00	<i>Free time</i>
19:00	<i>Dinner</i>

DAY 3 – Tuesday April 1st

Session 4 – Modelling approaches and novel tools [Chaired by: **Colin Seymour**, Canada]

09:00 – 09:20	Ultrashort Pulsed Radiation Sources and Their Applications [Bagrat Grigoryan , Armenia]
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09:20 – 09:40	Remote effects of long-term radiation exposure on different levels of biological organisation of aquatic organisms in the Chernobyl exclusion zone [Dmitri Gudkov , Ukraine]
09:40 – 10:00	Modelling adaptive responses following chronic and low dose exposure in amphibians [Marilyne Audette-Stuart , Canada]
10.00 - 10.20	Low-dose radiation effects on stem cells in wild animals in Fukushima, [Kentaro Ariyoshi , Japan]
10:20 – 11:10	<i>Coffee break and workshop group photograph</i>
11.10– 12:50	<i>Tour of CANDLE</i>
12:50 – 14:00	<i>Lunch</i>

Session 4 – Continued [Chaired by: **Colin Seymour**, Canada]

14:00 – 14:20	ICRP ecosystem approaches [David Copplestone , UK]
14:20 – 14:40	Molecular Imaging - Wisdom to See for Maladies to Flee [Rao Papineni , USA]
14:40 – 15:00	Open discussion for Session 4

Session 5 – Learning from other disciplines about multiple stressor interactions [Chaired by: **Andrea Bonisoli-Alquati**]

15:00 – 15:20	Learning from Emergency and ARS planning [Michael Abend , Germany]
15.20-15.40	Learning from Ecotoxicology [Andrea Bonisoli Alquati , USA]
15:40 – 16:00	<i>Coffee Break</i>
16:00 – 16:20	Lessons from radiation biodosimetry [Nicholas Dainiak , USA]
16:20 – 16:40	Lessons from cytogenetics [Rhona Anderson , UK]
16:40 – 17:00	Open discussion for Session 5



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17:00 – 17:20 Developing a position paper [**Carmel Mothersill**, Canada and
Arsen Arakelyan, Armenia]

17:20 – 19:30 *Free Time*

19:30 *ARW Dinner*

DAY 4 – Wednesday April 2nd

9:00 – 10:00 Poster Session

Session 6 - System approaches in radiobiology and ecotoxicology [Chaired by: **Andrea Bonisoli-Alquati**,
USA]

10:00 – 10:20 System approaches in Ecotoxicology [**Knut Erik Tollefson**, Norway]

10:20 – 10:40 System biology and wicked problems [**Larry Kapustka**, Canada]

10:40 – 11:00 *Coffee Break*

Session 6 – Continued [Chaired by: **Andrea Bonisoli-Alquati**, USA]

11:00 – 11:20 Citizen science and its role in data collection and risk management
[**Deborah Oughton**, Norway]

11:20 – 11:40 Risk communication: how should we effectively engage the public?
[**Rhea Desai**, Canada]

11:40 – 12:00 Open Discussion for Session 6

Session 7: Omics, AOPs and toolboxes; specialised methods and techniques [Chaired by: **Rhea Desai**]

12:00 – 13:00 A panel including **Michael Abend** [Germany], **Knut Erik Tollefson**
[Norway], **Omid Azimzadeh** [Germany] will present and discuss
applications of new tools in low dose research.



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13:00 – 14:00

Lunch

14:00 – 15:30

Position paper development [facilitated by **Carmel Mothersill**, Canada and
Arsen Arakelyan, Armenia]

15:30 – 15:50

Coffee Break

Closing Session – [Chaired by: **Carmel Mothersill and Arsen Arakelyan**]

15:50 – 16:10

Work plan for contributions to NATO Science Series book

16:10 – 16:30

Open discussion, final comments on workshop

16:30 – 16:45

Closing remarks

16:45 – 19:00

Free time

19:00

Dinner