



# ICRP 2023

7th International Symposium on the System of Radiological Protection  
6-9 NOVEMBER 2023 • TOKYO, JAPAN

# FULL SYMPOSIUM PROGRAMME

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**ICRP**  
International Commission  
on Radiological Protection



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# ICRP 2023 WOULD LIKE TO THANK OUR GENEROUS SPONSORS:

## SPECIAL PARTNERS



## PARTNERS

EC, HERCA, FORO, IARC, IAEA, ICRU, ILO, IOMP, IRPA, ISRRT, ISR, NEA, UNSCEAR, WHO, WNA, RERF, FMU, Hiroshima University, Nagasaki University

## COOPERATING ORGANISATIONS



## CONTRIBUTORS



CANON MEDICAL SYSTEMS CORPORATION

## IN COORDINATION WITH



## HOST ORGANISATIONS



### **National Institute for Quantum Science and Technology (QST)**

The National Institute for Quantum Science and Technology (QST) was established in April 2016 to promote quantum science and technology in a comprehensive and integrated manner. The new organization was formed from the merger of the National Institute of Radiological Sciences (NIRS) with certain operations that were previously undertaken by the Japan Atomic Energy Agency (JAEA).

<https://www.qst.go.jp/site/qst-english/>



### **International Commission on Radiological Protection (ICRP)**

The International Commission on Radiological Protection (ICRP) was established in 1928 at the second International Congress of Radiology to respond to growing concerns about the effects of ionizing radiation being observed in the medical community. At the time it was called the International X-ray and Radium Protection Committee (IXRPC) but was restructured to better take account of uses of radiation outside the medical area and given its present name in 1950.

<https://icrp.org/>

# COMMITTEES

## ICRP 2023 Executive Committee

Christopher Clement (ICRP)  
 Reiko Kanda (QST)  
 Werner Rühm (ICRP)  
 Michiaki Kai (ICRP)

## ICRP 2023 Programme Committee

Christopher Clement (ICRP)  
 Takashi Yasumune (ICRP)  
 Werner Rühm (ICRP)  
 Michiaki Kai (ICRP)  
 Yukio Uchihori (QST)  
 Sumi Yokoyama (JHPS)  
 Satoshi Tashiro (JRRS)

### Advisory Groups:

EC	ICRU	ISR	RERF
HERCA	ILO	NEA	FMU
FORO	IOMP	UNSCEAR	Hiroshima-U
IARC	IRPA	WHO	Nagasaki-U
IAEA	ISRRT	WNA	

## ICRP 2023 Local Organising Committee

Reiko Kanda (QST)	Hiroshi Tauchi (JRRS)
Yukio Uchihori (QST)	Tatsuhiko Imaoka (JRRS)
Isao Kawaguchi (QST)	Teruyuki Hakoda (QST)
Christopher Clement (ICRP)	Naruhiko Matsufuji (QST)
Takashi Yasumune (ICRP)	Tatsuya Higashi (QST)
Hiroki Fujita (JAEA)	Takashi Moritake (QST)
Takeshi Iimoto (JHPS)	Keisuke Hatano (QST)
Michiya Sasaki (JHPS)	

# GENERAL SYMPOSIUM INFORMATION

## Registration Desk Hours

### Lobby

6 November	16:00 - 19:00
7 November	7:30 - 17:00
8 November	8:00 - 17:00
9 November	8:00 - 14:30

## Exhibition & Poster Hall Hours

### Foyer (*Exhibits*)

7 November
8 November
9 November

### Palais Royal A (*Posters*)

9:30 - 17:30
9:30 - 17:30
9:30 - 17:30

## Food & Beverage

### Palais Royal BC

Morning Coffee Break	11:00 - 11:30
Lunch Break	13:00 - 14:00
Afternoon Coffee Break	15:30 - 16:00



**Wireless  
Internet**

Network: **GrandNikko**  
Password: **daiba12**

# GENERAL SYMPOSIUM INFORMATION

## Access/Security

Name badges will be provided to all attendees, sponsors, and exhibitors and will be available for pick up at the Registration Desk (see venue map). Please wear your badge at all times as it is your admission to all symposium sessions, Exhibit & ePoster Hall, and social events.

## Language

The official language of ICRP 2021+1 is English. All sessions will be conducted in English.

## Parking

Staying Guest: ¥2,000 per car per stay with validation  
Non Staying: ¥1,000 for the first hour and ¥500 per 30 minutes thereafter

## Photography

An official photographer is present during the symposium. By registering and attending ICRP 2021+1, you agree to have your photo taken. Photography may be used for marketing purposes for future ICRP events.

## Lost & Found

Please report any lost or unattended items immediately to the ICRP 2023 Registration Desk. Should you lose anything while at ICRP 2023, please enquire at the Registration Desk where any recovered lost property will be held. At the end of the symposium, all unclaimed lost and found items will be given to the Grand Nikko Hotel.

## Health & Safety

The health and safety of all our stakeholders is of the utmost importance!

For the latest health and safety information outlined by the Ministry of Health, Labor and Welfare of Japan, please visit:

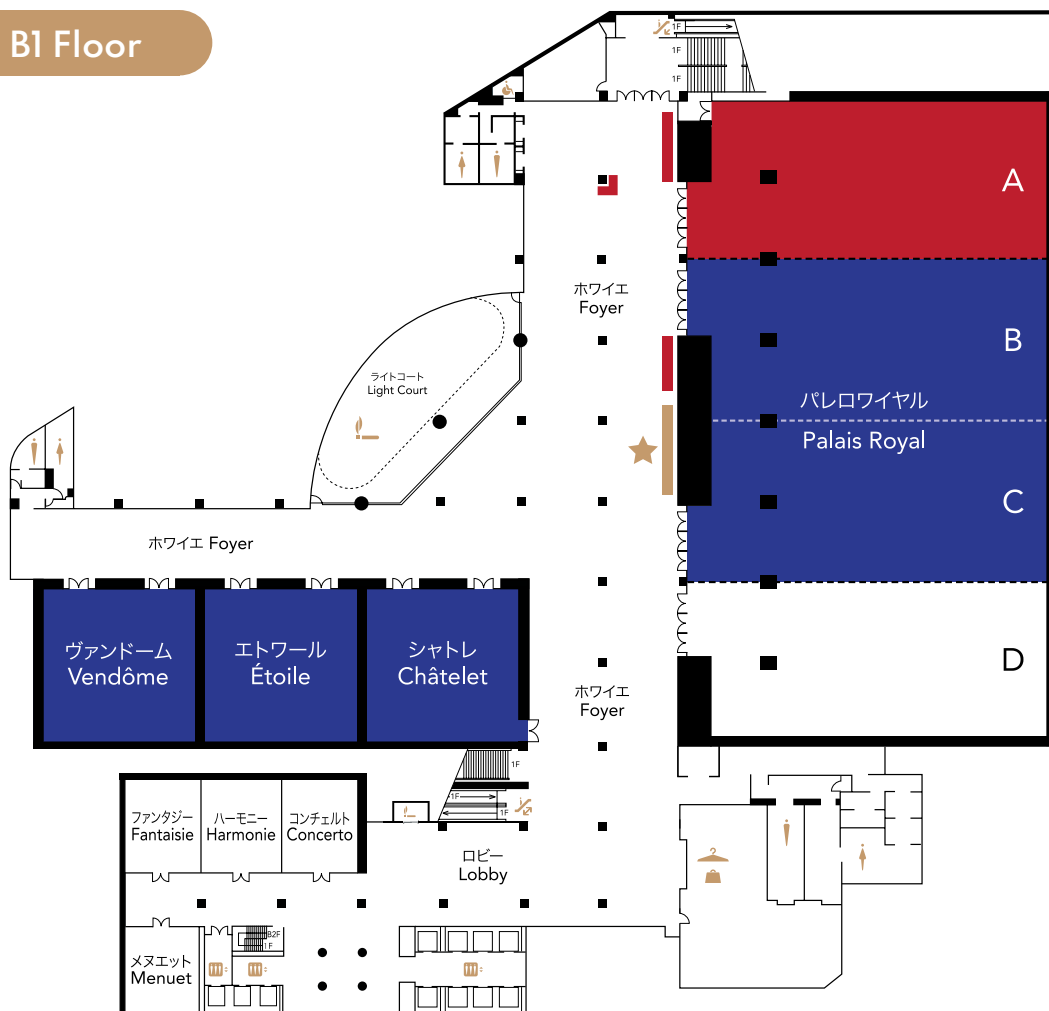
<https://www.mhlw.go.jp/stf/english/index.html>

For the Grand Nikko's commitment to clean, please visit:

<https://www.tokyo.grandnikko.com/stay/agreement/>

# VENUE FLOORPLAN

## B1 Floor



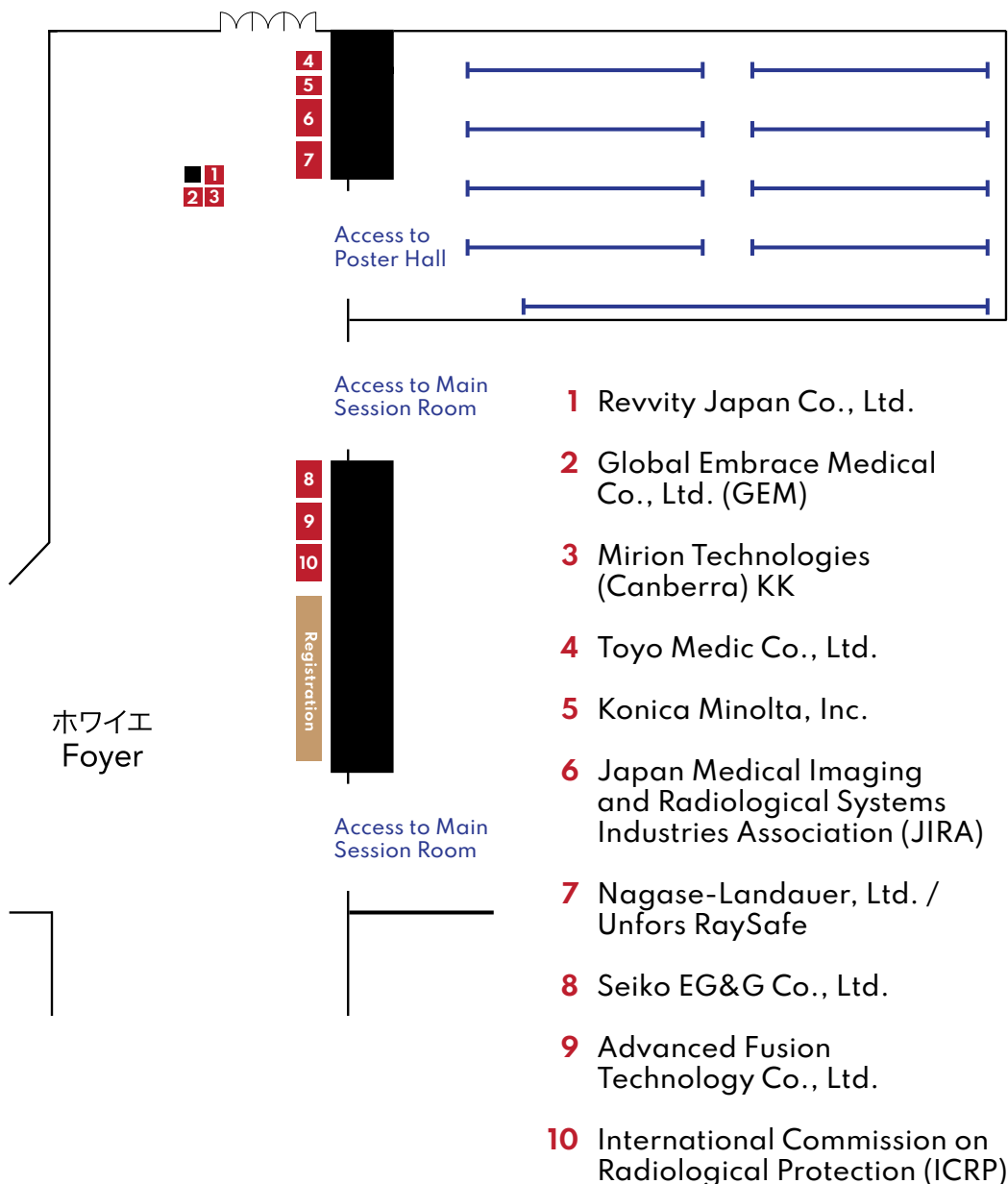
■ ICRP Session Rooms

■ Poster Hall and  
Exhibition Booths

★ Registration



# EXHIBITORS FLOORPLAN



## SOCIAL EVENTS

### Welcome Reception

6 November 17:30 - 19:00

📍 Palais Royal C

*\*Symposium badge required for entry*

### Gala Dinner

*Co-hosted by ICRP, QST, JRRS, and JHPS*

8 November 18:00 - 20:00

📍 Palais Royal BC

*\*Symposium badge or event ticket required for entry*

## POSTER PORTAL

To fully enjoy the symposium, we invite you to join the ICRP 2023 Poster Portal. Here you can access the full scientific programme, session recordings, abstracts, digital posters, and on-demand video presentations, plus interact with colleagues and friends.



To login, scan the QR Code or visit:  
<https://event.fourwaves.com/icrp2023>

All content is accessible from your browser and no app download is necessary. Login with your email address and password created during account activation.

*For Poster Portal support, please contact  
[charlotte.white@icrp.org](mailto:charlotte.white@icrp.org)*

# POSTER SESSIONS

 Palais Royal A

Over 300 posters will be available to view in-person during ICRP 2023. Each day, the afternoon break will have a dedicated poster session for posters submitted either to ICRP 2023, the Japanese Radiation Research Society (JRRS), or the Japan Health Physics Society (JHPS).

**Tuesday 7 November** 15:30 - 16:00

Break & JRRS Poster Session

Posters: 1001 — 1100

**Wednesday 8 November** 15:30 - 16:00

Break & ICRP 2023 Poster Session

Posters: 2001 — 2166

2401 — 2435

**Thursday 9 November** 15:30 - 16:00

Break & JHPS Poster Session

Posters: 3001 — 3055

Please see the Poster Programme (supplement) for the full list of available posters.

**To find your favourite posters in-person, please see the Poster Hall Map on the last page of this programme.**

# PROGRAMME AT A GLANCE

JST	Monday, 6 November		Tuesday, 7 November	
8:30			<b>Welcome Address &amp; Bo Lindell Lecture</b>	
9:00	<b>LOCATION</b>	<b>SESSION</b>	8:30 - 9:25	
9:30	Palais Royal BC	1 - 6, 15 - 18		
10:00		Welcome Address	<b>Session 1</b>	
10:30		Bo Lindell Lecture	Going Beyond Dose: Wellbeing in RP	
11:00	Étoile	Keynote Lectures	9:30 - 11:00	
11:30	Vendôme	Closing	<b>Coffee Break</b>	
12:00	Châtelet	7, 10, 13	11:00 - 11:30	
12:30		8, 11, 14	<b>Session 2</b>	
13:00		9, 12	Dosimetry for the Next General Recommendations	
13:30			11:30 - 13:00	
14:00			<b>Lunch</b>	
14:30			13:00 - 14:00	
15:00			<b>Session 3</b>	
15:30			Communication	
16:00			14:00 - 15:30	
16:30			<b>Coffee Break &amp; Poster Session (JRRS)</b>	
17:00			15:30 - 16:00	
17:30			<b>Session 4</b>	
18:00			How Experience of the Fukushima Daiichi Accident is Improving RP	
18:30			16:00 - 17:30	
19:00				
	<b>Welcome Reception</b>			
	17:30 - 19:00			

Exhibition and Poster Hall

# PROGRAMME AT A GLANCE

JST	Wednesday, 8 November	Thursday, 9 November
8:30	<b>Keynote: Atomic Bombing, Suffering and Science</b> 8:30 - 9:25	<b>Keynote: Clinical Potential and Prospects for Carbon Ion Radiotherapy from Physical and Biological Properties</b> 8:30 - 9:30
9:00		
9:30	<b>Session 5</b> <b>The Next Generation of Scientists &amp; Professionals</b> 9:30 - 11:00	<b>Session 15</b> <b>RP in Ion Beam and Targeted Alpha Therapy</b> 9:30 - 11:00
10:00		
10:30		
11:00	<b>Coffee Break</b> 11:00 - 11:30	<b>Coffee Break</b> 11:00 - 11:30
11:30	<b>Session 6</b> Stratification & Individualisation 11:30 - 13:00	<b>Session 16</b> <b>Radiation Detriment, Other Risk Metrics, and Their Application</b> 11:30 - 13:00
12:00	<b>Session 7</b> Sustainable Development & Protection of the Environment 11:30 - 13:00	
12:30	<b>Session 8</b> Classification of Effects 11:30 - 13:00	
13:00		
13:30	<b>Lunch</b> 13:00 - 14:00	<b>Lunch</b> 13:00 - 14:00
14:00	<b>Session 9</b> Exposure Categories & Situations 14:00 - 15:30	<b>Session 17</b> <b>Effects &amp; Dose-Response: Cancer, Circulatory Disease, and Beyond</b> 14:00 - 15:30
14:30	<b>Session 10</b> Tolerability & Reasonableness 14:00 - 15:30	
15:00	<b>Session 11</b> Offspring & Next Generations 14:00 - 15:30	
15:30	<b>Coffee Break &amp; Poster Session (ICRP)</b> 15:30 - 16:00	<b>Coffee Break &amp; Poster Session (JHPS)</b> 15:30 - 16:00
16:00	<b>Session 12</b> Radiation Emergencies 16:00 - 17:30	<b>Session 18</b> <b>Strengthening Expertise and Raising Public Awareness</b> 16:00 - 17:30
16:30	<b>Session 13</b> Imaging in Radiotherapy 16:00 - 17:30	
17:00	<b>Session 14</b> Justification 16:00 - 17:30	
17:30		<b>Closing</b> 17:30 - 18:00
18:00		
18:30	<b>Gala Dinner (ICRP, JRRS, &amp; JHPS)</b> 18:00 - 20:00	
19:00		
19:30		
20:00		

Exhibition and Poster Hall

Exhibition and Poster Hall

# FULL SYMPOSIUM PROGRAMME

## Tuesday 7 November

### 8:30 - 9:25 Welcome & Bo Lindell Lecture

 Palais Royal BC

**Moderator:** Christopher CLEMENT (ICRP, Canada)

**8:30 - 8:45 Welcome Remarks**  
*Shinsuke YAMANAKA (NRA, Japan)*  
*Shigeo KOYASU (QST, Japan)*  
*Michiya SASAKI (JHPS, Japan)*  
*Satoshi TASHIRO (JRRS, Japan)*

**8:45 - 8:55 Welcome & Introductory Remarks**  
*Werner RÜHM (ICRP, Germany)*

**8:55 - 9:00 Bo Lindell Medal Introduction**  
*Werner RÜHM (ICRP, Germany)*

**9:00 - 9:25 Bo Lindell Lecture**  
*Ludovic VAILLANT (CEPN, France)*

### 9:25 - 9:30 Break

### 9:30 - 11:00 Session 1: Going Beyond Dose: Wellbeing in RP

 Palais Royal BC

**Co-chairs:** Emilie van DEVENTER (WHO, Switzerland), Noboru TAKAMURA (Nagasaki University, Japan)

**Rapporteur:** Seiko HIROTA (Hiroshima University, Japan)

**9:30 - 9:33 Opening Remarks**  
*Co-chairs*

**9:33 - 9:40 Introduction of Related Video and Poster Presentations**  
*Rapporteur*

**9:40 - 9:55 Mental Health and Psychosocial Support in Radiological and Nuclear Emergencies: Part 1 - The WHO Framework**  
*Zhanat CARR (WHO, Switzerland)*

**9:55 - 10:10 Mental Health and Psychosocial Support in Radiological and Nuclear Emergencies: Part 2 - NEA's Operational Extension**  
*Julie BURTT (NEA EGNR, Canada)*

**10:10 - 10:25 Towards Well-being: Learning from Patient Experience and Interaction in ICRP TG109 Report**  
*Marie-Claire CANTONE (University of Milan, Italy)*

**10:25 - 10:40 Risk Communication for Recovery of the Community in Fukushima**  
*Noboru TAKAMURA (Nagasaki University, Japan)*

**10:40 - 11:00 Q&A Session**

# FULL SYMPOSIUM PROGRAMME

## 11:30 - 13:00 Session 2: Dosimetry for the Next Generation

📍 Palais Royal BC

**Co-chairs:** François BOCHUD (ICRP & IRA CHUV, Switzerland), Tatsuhiko SATO (ICRP & JAEA, Japan)  
**Rapporteur:** Camille PACHER (ICRP & MUHC, Canada)

**11:30 - 11:40** Introduction of Related Video and Poster Presentations  
*Rapporteur*

**11:40 - 11:55** Mesh-type Reference Computational Phantoms (MRCPs) for the Next General Recommendations  
*Yeon Soo YEOM (Yonsei University, Korea)*

**11:55 - 12:10** Introduction of a New ICRU Report on Microdosimetry  
*Tatsuhiko SATO (JAEA, Japan)*

**12:10 - 12:25** The Next ICRP Recommendations: Dosimetry for Animals and Plants—Time for a Probabilistic Paradigm?  
*Alexander ULANOWSKI (IAEA, Austria)*

**12:25 - 12:40** Specific Absorbed Fractions for Reference Individuals for the Current and Next General Recommendations  
*Derek JOKISCH (Francis Marion University, USA)*

**12:40 - 13:00** Q&A Session

## 13:00 - 14:00 Lunch

## 14:00 - 15:30 Session 3: Communication

📍 Palais Royal BC

**Co-chairs:** Friedo ZÖLZER (ICRP & University of South Bohemia, Czech Republic), Shoji TSUCHIDA (Kansai University, Japan)  
**Rapporteur:** Franklin EZE (ICRP & Mercy Radiology, New Zealand)

**14:00 - 14:10** Introduction of Related Video and Poster Presentations  
*Rapporteur*

**14:10 - 14:30** The Fukushima Dialogue and Risk Communication  
*Jacques LOCHARD (Nagasaki University, Japan)*

**14:30 - 14:50** The Role of Effective Communication and Stakeholder Engagement in the Application of the System of Protection  
*Peter BRYANT (WNA, UK)*

**14:50 - 15:10** HERCA's Perspectives on the Challenges of the Communication in Radiation Protection  
*Tommi TOIVONEN (HERCA, Finland)*

**15:10 - 15:30** Q&A Session

## 15:30 - 16:00 Break / Poster Session (JRRS)

📍 Palais Royal A

# FULL SYMPOSIUM PROGRAMME

## 16:00 - 17:30 Session 4: How Experience of the Fukushima Daiichi Accident is Improving Radiological Protection

📍 Palais Royal BC

**Co-chairs:** Thierry SCHNEIDER (ICRP & CEPN, France), Toshimitsu HOMMA (NRA, Japan)  
**Rapporteur:** Isamu AMIR (FMU, Japan)

16:00 - 16:10 Introduction of Related Video and Poster Presentations

*Rapporteur*

16:10 - 16:22 Progress on Radiation Protection after Fukushima- Daiichi in the Spanish Nuclear Safety Council  
*Elvira ROMERA (CSN, Spain)*

16:22 - 16:34 The Experience of the Suetsugi Atlas: Lessons for the Implementation of the Co-expertise Process  
*Ryoko ANDO (NPO Fukushima Dialogue, Japan)*

16:34 - 16:46 Solution-oriented Risk Governance Practices toward Reconstruction and Improved Wellbeing after the Fukushima Disaster

*Michio MURAKAMI (Osaka University, Japan)*

16:46 - 16:58 Impact and Implications of Radiation/Nuclear Disasters on Public Health: A Focus on Evacuations and Disaster-Related Deaths

*Masaharu TSUBOKURA (FMU, Japan)*

16:58 - 17:10 Preparing for Recovery from a Nuclear Accident: The NEA preparedness framework

*Anne NISBET (UKHSA, UK)*

17:10 - 17:30 Q&A Session

## Wednesday 8 November

## 8:30 - 9:30 Keynote Speaker: Ohtsura Niwa

📍 Palais Royal BC

**Moderator:** Claire COUSINS (former ICRP MC Chair, UK)

8:30 - 8:35 Introduction

*Moderator*

8:35 - 9:15 Atomic Bombing, Suffering and Science

*Ohtsura NIWA (RERF, Japan)*

9:15 - 9:30 Q&A Session



# FULL SYMPOSIUM PROGRAMME

## 8:30 - 9:30 Session 5: The Next Generation of Scientists & Professionals

📍 Palais Royal BC

### Presentations of Cousins Award Finalists

**Chair:** Claire COUSINS (former ICRP MC Chair, UK)

9:30 - 9:35 **Introduction**

*Chair*

9:35 - 9:45 **A Biokinetic Model to Assess Radon Uptake by the Fetus in Pregnant Women**

*Ämilie DEGENHARDT (BfS, Germany)*

9:45 - 9:55 **PregiDose: A Mobile Application Designed Through a User-Centered Approach to Enhance Fetal**

**Dosimetry and Wellbeing Among Pregnant Radiographers**

*Hafsa ESSOP (University of Pretoria, South Africa)*

9:55 - 10:05 **Rethinking Tissue Reactions to Radiation: The Tissue-Sparing Effect as a Threshold for Radiation-Induced Male Infertility**

*Hisanori FUKUNAGA (Hokkaido University, Japan)*

10:05 - 10:15 **To Leave or Not to Leave: A Tiered Assessment of the Impacts of Scale Residue From**

**Decommissioned Offshore Oil and Gas Infrastructure in Australia**

*Amy MACINTOSH (Macquarie University & ANSTO, Australia)*

### Presentations of Invited Young Scientists and Professionals

**Co-chairs:** Akihiro SAKODA (JAEA, Japan), Sara DUMIT (ICRP & LANL, USA)

**Rapporteur:** Shinnosuke MATSUMOTO (Tokyo Metropolitan University, Japan)

10:15 - 10:19 **Introduction**

*Co-chairs*

10:19 - 10:28 **Introduction of Related Video and Poster Presentations**

*Rapporteur*

10:28 - 10:40 **The Future of Radiation Protection for Young Professionals with Experiences of the IRPA Young Generation Network**

*Takahiko KONO (JHPS YGN & IRPA YG, Japan)*

10:40 - 10:52 **What Does Social Science Have to Do with Radiation Protection?**

*Maren GRUB (BfS, Germany)*

10:52 - 11:00 **Q&A Session**

*Takahiko KONO & Maren GRUB*

11:00 - 11:30 **Break**

# FULL SYMPOSIUM PROGRAMME

## PARALLEL SESSIONS 1

### 11:30 - 13:00 Session 6: Stratification & Individualisation

#### 📍 Palais Royal BC

**Co-chairs:** Simon BOUFFLER (ICRP & UKHSA, UK), Tatsuhiko IMAOKA (QST, Japan)  
**Rapporteur:** Luana HAFNER (ENSI, Switzerland)

11:30 - 11:33 **Introduction**  
*Co-chairs*

11:33 - 11:40 **Introduction of Related Video and Poster Presentations**  
*Rapporteur*

11:40 - 11:55 **Individual Differences in Medical Radiation Exposure in CT dosimetry Based on Age and BMI**  
*Weishan CHANG (Tokyo Metropolitan University, Japan)*

11:55 - 12:10 **Individualizing Radiation Cancer Risk: Insights from Animal Studies**  
*Tatsuhiko IMAOKA (QST, Japan)*

12:10 - 12:25 **The Case for Individualisation of Radiological Protection in Medicine**  
*Colin J MARTIN (University of Glasgow, UK)*

12:25 - 12:40 **Doses and Risks in Common Medical Examinations – Impact of Age and Sex**  
*Richard WAKEFORD (University of Manchester, UK)*

12:40 - 13:00 **Q&A Session**

### 11:30 - 13:00 Session 7: Sustainable Development and Protection of the Environment

#### 📍 Étoile

**Co-chairs:** Nicole MARTINEZ (ICRP & Clemson University, UK), Keiko TAGAMI (QST, Japan)  
**Rapporteur:** Adrienne ETHIER (CNSC, Canada)

11:30 - 11:40 **Introduction of Related Video and Poster Presentations**  
*Rapporteur*

11:40 - 12:10 **Ensuring that Environmental Radiological Protection Remains Fit for Purpose and Science Based: Ongoing Work of Task Groups 99 and 105**  
*Christelle ADAM-GUILLERMIN (IRSN, France), Andy MAYALL (EA, UK), & Jacqueline GARNIER-LAPLACE (NEA, FRANCE)*

12:10 - 12:40 **Environmental Radiological Impacts of the Nuclear Industry from Mining, to Construction, Operation and Decommissioning of a Power Station**  
*Peter BRYANT (Sizewell C / WNA, UK) & Jim HONDROS (WNA, Australia)*

12:40 - 13:00 **Q&A Session**

### 11:30 - 13:00 Session 8: Classification of Effects

#### 📍 Vendôme

**Co-chairs:** Ludovic VAILLANT (ICRP & CEPN, France), Michiya SASAKI (ICRP & CRIEPI, Japan)  
**Rapporteur:** Constantinos ZERVIDES (MEDI, Cyprus)

# FULL SYMPOSIUM PROGRAMME

11:30 - 11:45	<b>Classification of Harmful Radiation-induced Effects on Human Health for Radiological Protection Purposes: History and Concepts</b> <i>Friedo ZÖLZER (U South Bohemia, Czech Republic)</i>
11:45 - 12:00	<b>Is Cancer Risk of Radiation Probabilistic or Deterministic?</b> <i>Nori NAKAMURA (RERF, Japan)</i>
12:00 - 12:15	<b>Revisiting Radiation Dose-Response for Tissue Reactions</b> <i>Haruyuki OGINO (NRA, Japan)</i>
12:15 - 12:30	<b>Task Group 123: Classification of Harmful Radiation-induced Effects on Human Health for Radiological Protection Purposes</b> <i>Liz AINSBURY (UKHSA, UK)</i>
12:30 - 13:00	<b>Q&amp;A Session</b>

**13:00 - 14:00**    **Lunch**

## PARALLEL SESSIONS 2

### 14:00 - 15:30    Session 9: Exposure Categories & Situations

 **Châtelet**

**Co-chairs:** Analia CANOBA (ICRP & ARN, Argentina), Hiroko YOSHIDA (ICRP & Tohoku University, Japan)  
**Rapporteur:** Yuji INUKAI (C-Technol, Japan)

14:00 - 14:10	<b>Introduction of Related Video and Poster Presentations</b> <i>Rapporteur</i>
14:10 - 14:15	<b>Breakthroughs of Task Group 127</b> <i>Analia CANOBA (ICRP &amp; ARN, Argentina)</i>
14:15 - 14:25	<b>Is NORM always an Existing Exposure Situation?</b> <i>Christopher JONES (AWE, UK)</i>
14:25 - 14:35	<b>Some Issues in the Implementation of the Current System of Protection</b> <i>Analia CANOBA (ICRP &amp; ARN, Argentina)</i>
14:35 - 14:45	<b>Connections between Categories of Exposure in the Hospital Setting</b> <i>Lorenzo Nicola MAZZONI (Medical Physics Unit Prato-Pistoia, AUSL Toscana Centro, Italy)</i>
14:45 - 14:55	<b>Issues and Confusions in an Existing Exposure Situation After the Fukushima Accident</b> <i>Hiroko YOSHIDA (Tohoku University, Japan)</i>
14:55 - 15:05	<b>Exposure Categories &amp; Situations in the Current System of Radiation Protection: Main Challenges and IAEA's Activities to Assist its Members States in Addressing Them</b> <i>Olvido GUZMÁN (IAEA, Austria)</i>
15:05 - 15:30	<b>Q&amp;A Session</b>

### 14:00 - 15:30    Session 10: Tolerability & Reasonableness

 **Étoile**

**Co-chairs:** Thierry SCHNEIDER (ICRP & CEPN, France), Haruyuki OGINO (ICRP & NRA, Japan)  
**Rapporteur:** Momo TAKADA (AIST, Japan)

# FULL SYMPOSIUM PROGRAMME

14:00 - 14:10	<b>Introduction</b> <i>Co-chairs</i>
14:10 - 14:20	<b>A Proposed Framework for Reasonable: Relationships, Rationale, and Resources</b> <i>Nicole MARTINEZ (ICRP, USA)</i>
14:20 - 14:30	<b>Summary of the ICRP-WNA Workshop on Optimisation</b> <i>Marcel LIPS (WNA, Switzerland)</i>
14:30 - 14:40	<b>How can Reasonableness and Tolerability be Considered in Implementing Optimisation in the Decision-making Process?</b> <i>Jacqueline GARNIER-LAPLACE (OECD/NEA, France)</i>
14:40 - 14:50	<b>ICRP TG 114, Application of Tolerability and Reasonableness in the Medical Field</b> <i>Marie-Claire CANTONE (University of Milan, Italy)</i>
14:50 - 15:00	<b>Introduction of Related Video and Poster Presentations</b> <i>Rapporteur</i>
	<b>Panel Discussion</b>
15:00 - 15:05	<b>Tolerability &amp; Reasonableness: Views from IRPA</b> <i>Bernard le GUEN (IRPA, France)</i>
15:05 - 15:10	<b>A Benchmark for Comparing Radiation-related Cancer Risk Among Countries: Baseline Cancer Rates of Incidence and Mortality</b> <i>Jun HIROUCHI (JAEA, Japan)</i>
15:10 - 15:30	<b>Q&amp;A Session including members of ICRP TG114</b>

## 14:00 - 15:30 Session II: Offspring & Next Generations

### Vendôme

<b>Co-chairs:</b>	Prakash HANDE (ICRP & National U of Singapore, Singapore), Yoshiya SHIMADA (ICRP & IES, Japan)
<b>Rapporteur:</b>	Hisanori FUKUNAGA (Hokkaido University, Japan)
14:00 - 14:03	<b>Introduction</b> <i>Co-chairs</i>
14:03 - 14:10	<b>Introduction of Related Video and Poster Presentations</b> <i>Rapporteur</i>
14:10 - 14:20	<b>The Work of ICRP Task Group 121 – the Effects of Preconceptional and Intrauterine Exposures</b> <i>Richard WAKEFORD (University of Manchester, UK)</i>
14:20 - 14:34	<b>A Multidisciplinary Challenge to Assess the Next-generation Risks of Low-dose-rate Long-term Gamma-ray Exposure by Whole-genome Sequencing in the Mouse Model</b> <i>Yoichi GONDO (Tokai University, Japan)</i>
14:34 - 14:48	<b>History and Future Prospects of RERF Studies on Offspring of Atomic Bomb Survivors</b> <i>Asao NODA (RERF, Japan)</i>
14:48 - 15:03	<b>Whole Genome Sequencing Analysis for Understanding Next Generation Effects of Radiation Exposure</b> <i>Arikuni UCHIMURA (RERF, Japan)</i>
15:03 - 15:17	<b>Lack of Transgenerational Effects of Ionizing Radiation Exposure in Cleanup Workers and Evacuees of the Chernobyl Accident</b> <i>Meredith YEAGER (NCI/NIH, USA)</i>

# FULL SYMPOSIUM PROGRAMME

15:17 - 15:30

Q&amp;A Session

15:30 - 16:00

Break / Poster Session (ICRP 2023)

📍 Palais Royal A

## PARALLEL SESSIONS 3

16:00 - 17:30

Session 12: Radiation Emergencies

📍 Châtelet

Co-chairs:

Anne NISBET (ICRP &amp; UKHSA, UK), Satoshi TASHIRO (Hiroshima University, Japan)

Rapporteur:

Kotaro TANI (QST, Japan)

16:00 - 16:10

Introduction of Related Video and Poster Presentations

*Rapporteur*

16:10 - 16:22

Medical System for Radiation Emergency in Japan

*Takako TOMINAGA (QST, Japan)*

16:22 - 16:34

The Work of ICRP TG120 on Radiation Emergencies and Malicious Events

*Anne NISBET (UKHSA & Chair ICRP TG120, UK)*

16:34 - 16:46

New WHO Policy Advice on National Stockpiles for Radiological and Nuclear Emergencies

*Zhanat CARR (WHO, Switzerland)*

16:46 - 16:58

Communicating Radiation Emergencies on Social Media

*Maren GRUB (ICRP & BFS, Germany)*

16:58 - 17:30

Q&amp;A Session

16:00 - 17:30

Session 13: Imaging in Radiotherapy

📍 Étoile

Co-chairs:

Colin J MARTIN (ICRP &amp; University of Glasgow, UK),

Makoto HOSONO (ICRP &amp; Kindai University, Japan)

Rapporteur:

Yumi LEE (Yonsei University, Republic of Korea)

16:00 - 16:10

Introduction of Related Video and Poster Presentations

*Rapporteur*

16:10 - 16:25

A Survey of Image Guided Radiation Therapy Practices around the Globe

*Colin J MARTIN (University of Glasgow, UK)*

16:25 - 16:40

Fit for Purpose: Dose Optimization in Radiotherapy Imaging in a Large Organization

*Tomas KRON (Peter Mac, Australia)*

16:40 - 16:55

Development of a Methodology for Measurement of Dose for Cone Beam CT Scans in Radiotherapy

*Mario DJUKELIC (Sir Charles Gairdner Hospital, Australia)*

16:55 - 17:10

Image-guided Heavy Ion Therapy

*Shinichiro MORI (QST, Japan)*

17:10 - 17:30

Q&amp;A Session

# FULL SYMPOSIUM PROGRAMME

## PARALLEL SESSIONS 3

### 16:00 - 17:30 Session 14: Justification

#### 📍 Vendôme

**Co-chairs:** Nobuhiko BAN (ICRP & NRA, Japan), Julie BURTT (ICRP & CNSC, Canada)  
**Rapporteur:** Tatsuki KIMURA (CRIEPI, Japan)

**16:00 - 16:03** Introduction  
*Co-chairs*

**16:03 - 16:10** Introduction of Related Video and Poster Presentations  
*Rapporteur*

**16:10 - 16:30** Unique Aspects of Justification in Medicine: An Ethical Way Forward for the Radiological Protection Community  
 with short Q&A  
*Sergio SALERNO (University of Palermo, Italy)*

**16:30 - 16:50** All-hazard Approach to Preparedness and Response for Complex Disasters  
 with short Q&A  
*Terumasa NIIOKA (CAO, Japan)*

#### Panel Discussion

**16:50 - 16:53** Justification: Views from IRPA  
*Bernard le GUEN (IRPA, France)*

**16:53 - 16:56** Flexible Application of the Justification Principle: The View of the NEA "Expert Group on International Recommendations"  
*Sigurður MAGNÚSSON (OECD/NEA, Iceland)*

**16:56 - 16:59** TBD  
*Emilie van DEVENTER (WHO, Switzerland)*

**16:59 - 17:02** IAEA Activities in Relation to Justification of Medical Exposure  
*Ola HOLMBERG (IAEA, Austria)*

**17:02 - 17:30** Discussion

## Thursday 9 November

### 8:30 - 9:30 Keynote Speaker: Hirohiko Tsujii

#### 📍 Palais Royal BC

**Moderator:** Yasuhito SASAKI (SKGH, Japan)

**8:30 - 8:35** Introduction  
*Moderator*

# FULL SYMPOSIUM PROGRAMME

**8:35 - 9:15** Clinical Potential and Prospects for Carbon Ion Radiotherapy from Physical and Biological Properties  
**9:15 - 9:30** Hirohiko TSUJII (*QST, Japan*)  
**Q&A Session**

## 9:30 - 11:00 Session 15: RP in Ion Beam and Targeted Alpha Therapy

 Palais Royal BC

**Co-chairs:** M. MAHESH (ICRP, USA), Tatsuya HIGASHI (QST, Japan)  
**Rapporteur:** Weishan CHANG (Tokyo Metropolitan University, Japan)

**9:30 - 9:40** Introduction of Related Video and Poster Presentations  
*Rapporteur*

**9:40 - 9:58** Development and Clinical Application of Targeted Alpha Therapy using Astatine (At-211)  
*Tadashi WATABE (Osaka University, Japan)*

**9:58 - 10:16** Contribution of QST to Radiation Protection in Ion Beam Radiotherapy after Publication of ICRP127  
*Shunsuke YONAI (QST, Japan)*

**10:16 - 10:34** High-resolution Analysis of the DNA Damage Pattern Following Heavy Ion Irradiation Using Electron Microscopy  
*Claudia RÜBE (Saarland University, Germany)*

**10:34 - 10:52** RBE for Ion Beam and Targeted Alpha Therapy - From Medical Physics to Radiological Protection  
*Tatsuhiko SATO (JAEA, Japan)*

**10:52 - 11:00** Q&A Session

## 11:00 - 11:30 Break

## 11:30 - 13:00 Session 16: Radiation Detriment, Other Risk Metrics, and Their Application

 Palais Royal BC

**Co-chairs:** Michiaki KAI (ICRP & NBU, Japan), Richard WAKEFORD (ICRP & University of Manchester, UK)  
**Rapporteur:** Jun HIROUCHI (JAEA, Japan)

**11:30 - 11:33** Introduction  
*Co-chairs*

**11:33 - 11:40** Introduction of Related Video and Poster Presentations  
*Rapporteur*

**11:40 - 11:55** Analysis of Solid Cancer Incidence in the LSS of Atomic Bomb Survivors: 1958-2009  
*Alina BRENNER (RERF, Japan)*

**11:55 - 12:10** A Short Review of Published Multi-Model-Inference Studies in Radiation Epidemiology and Some New Developments  
*Luana HAFNER (ENSI, Switzerland)*

**12:10 - 12:25** Plausible Biological Mechanisms Underlying Sex Differences Radiation-Induced Lung Cancer Risk  
*Michael WEIL (Colorado State University, USA)*

**12:25 - 12:40** Reimagining Radiological Risk Communication  
*Samy EL-JABY (CNL, Canada)*

# FULL SYMPOSIUM PROGRAMME

12:40 - 13:00 Q&A Session

13:00 - 14:00 Lunch

14:00 - 15:30 **Session 17: Effects & Dose-Response: Cancer, Circulatory Disease, and Beyond**

 Palais Royal BC

**Co-chairs:** Dominique LAURIER (ICRP & IRSN, France), Kotaro OZASA (ICRP & Kyoto Pref Univ Med., Japan)  
**Rapporteur:** Yuki FUJIMICHI (CRIEPI, Japan)

14:00 - 14:03 Introduction

*Chair*

14:03 - 14:10 Introduction of Related Video and Poster Presentations

*Rapporteur*

14:10 - 14:25 **Dose-rate Effects and RBE: Life Shortening and Non-cancer Effects**

with short Q&A *Gayle WOLOSCHAK (Northwestern University, USA)*

14:25 - 14:40 **Cancer Risks Among Workers**

with short Q&A *David RICHARDSON (U of California Irvine, USA)*

14:40 - 14:55 **Overview of Recent Radiation Effects Research Foundation (RERF) Research Activities in Epidemiology**

with short Q&A

*Ritsu SAKATA (RERF, Japan)*

14:55 - 15:10 **Non-Cancer Effects of Radiation Exposure: Cataracts, Diseases of the Circulatory System and Beyond**

with short Q&A

*Nobuyuki HAMADA (CRIEPI, Japan)*

15:10 - 15:25 **UNSCEAR Ongoing and Planned Evaluations on Levels and Effects of Radiation Exposure**

with short Q&A

*Jing CHEN (UNSCEAR, Canada)*

15:25 - 15:30 Q&A Session

15:30 - 16:00 **Break / Poster Session (JHPS)**

 Palais Royal A

16:00 - 17:30 **Session 18: Strengthening Expertise and Raising Public Awareness**

 Palais Royal BC

**Co-chairs:** Kun-Woo CHO (ICRP & KINS, Republic of Korea), Reiko KANDA (QST, Japan)

**Rapporteur:** Yeon Soo YEOM (Yonsei University, Republic of Korea)

16:00 - 16:10 Introduction of Related Video and Poster Presentations

*Rapporteur*

16:10 - 16:20 **Vancouver Call for Action**

*Werner RÜHM (ICRP, Germany)*

16:20 - 16:25 **An Unprecedented Era with Patients Receiving High (>100 mSv) Cumulative Doses: Collective Actions Needed**

*Madan REHANI (MGH, Boston, USA & IOMP & IUPESM)*



# FULL SYMPOSIUM PROGRAMME

16:25 - 16:30	<b>The NEA's Efforts to Strengthen Radiological Protection Expertise and Public Awareness</b> <i>Jacqueline GARNIER-LAPLACE (NEA, France)</i>
16:30 - 16:35	<b>PIANOFORTE: A European Research Partnership to Strengthen Expertise in Radiation Protection</b> <i>Jean-Christophe GARIEL (IRSN, France)</i>
16:35 - 16:40	<b>TBD</b> <i>Emilie van DEVENTER (WHO, Switzerland)</i>
16:40 - 16:45	<b>HERCA Perspectives on Practical Aspects of Strengthening Expertise</b> <i>Carol ROBINSON (HERCA, UK)</i>
16:45 - 16:50	<b>Strengthening Expertise and Raising Public Awareness is a Part of Radiation Protection Culture: Example in Healthcare</b> <i>Bernard le GUEN (IRPA, France)</i>
16:50 - 16:55	<b>Raising Public Awareness on Radiation Science</b> <i>Jing CHEN (UNSCEAR, Canada)</i>
16:55 - 17:00	<b>Capacity and Expertise Building in Radiation Protection and Raising Public Awareness Core to IAEA's Mission</b> <i>Miroslav PINAK (IAEA, Austria)</i>
17:00 - 17:30	<b>Q&amp;A Session</b>

## 17:30 - 18:00 Closing

 Palais Royal BC

Moderator:	Simon BOUFFLER (ICRP & UKHSA, UK)
17:30 - 17:40	<b>Introduction of Remaining Video and Poster Presentations</b> <i>Simon BOUFFLER (ICRP &amp; UKHSA, UK)</i>
17:40 - 17:45	<b>ICRP Remarks</b> <i>Werner RÜHM (ICRP, Germany)</i>
17:45 - 17:50	<b>Remarks on Behalf of Japanese Organisers</b> <i>Reiko KANDA (QST, Japan)</i>
17:50 - 18:00	<b>Invitation to ICRP 2025</b> <i>TBD</i>
18:00	<b>Closing</b> <i>Werner RÜHM (ICRP, Germany)</i>

# KEYNOTE SPEAKERS



**Ohtsure Niwa**

**Wednesday  
8 November**

Ohtsure Niwa was born in Kobe, Japan during the second world war and his family evacuated to a rural village near Himeji. His childhood life was in full of excitements like swimming in a pond, climbing hills, hunting wild berry, fishing in the pond, mushroom hunting in the woods, but his family moved to Osaka when he was the 2nd grade elemental school. He went Kyoto University and took Zoology as his major. Because of student riot in late 1960s in Japan, He went to Stanford University and got Ph.D. in 1975, for the study of radiation induced endogenous mouse retrovirus which at that time was thought as the causative agent of mouse leukemia.

His professional research carrier started at Kyoto University Medical School in 1975. He studied the mechanism of radiation induction of endogenous retrovirus and found that the gene expression of endogenous virus was suppressed by DNA methylation and radiation induces the expression of the virus by demethylating the viral genome. He then moved to Hiroshima University Research Institute for Nuclear Medicine and Biology in 1984. It was well known that external infection of retrovirus in any somatic cells would leads to productive infection, but external infection of embryonal stem cell always results in silent infection due to immediate DNA methylation. Thereafter, he became interested in non-target mutation phenomena of radiation. For this study he started using hypervariable minisatellite loci. After moving to Kyoto University Radiation Biology Center in 1997, he studied non-targeted and delayed recombination using the pink-eyed unstable locus in mice born to irradiated spermatozoa, till his retirement in 2007.

After leaving laboratory research, he worked at National Institute of Radiological Sciences as an associate director of Heavy Ion Radiotherapy Center till 2009, and then worked at a private biopharmaceutical company till 2012. After the Fukushima Daiichi Power Plant Accident in 2011, he started visiting the area and then took a position at Fukushima Medical University in 2012 to live in affected land to communicate with local people. Since 2015, he served as the Chair of a Radiation Effects Research Foundation in Hiroshima and Nagasaki. Now, 2023, he retired from the Foundation. As for his involvement in radiation protection, he served ICRP as a CI member since 2001 and as a Main Commission member till 2016.



**Hirohiko Tsujii**

**Thursday  
9 November**

Visiting Researcher, QST Hospital, Chiba, Japan  
Deputy Director, Association for Nuclear Technology in Medicine (ANTM)

## Academic and Professional Appointments

1968	Graduated from Hokkaido University School of Medicine, Japan
1972 - 1975	Resident at St. Vincent Medical Center in New York, USA
1975 - 1989	Associate Professor, Hokkaido University School of Medicine
1978 - 1979	Research fellow at New Mexico University, NM, USA
1982 - 1983	Research fellow at Paul Sheller Institute, Switzerland
1989 - 1994	Professor, Proton Medical Research Center (PMRC), Tsukuba University
1994 - 2008	Director, NIRS Hospital, National Institute of Radiological Sciences (NIRS)
2008 - 2011	Executive Director, NIRS
2016 - 2018	Director, iROCK, Kanagawa Cancer Center
2018 - 2022	Director, International Particle Therapy Center, QST Hospital

## Honors

2004	President, JASTRO
2005	Scientific Award, Princess Takamatsu Cancer Research Prize
2006	Chairman, PTCOG
2013	Gold Medal, JASTRO
2015	The Order of the Sacred Treasure, Gold Rays with Neck Ribbon, Japan
2023	Robert R. Wilson Award, PTCOG



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GPS-0022 02/2022

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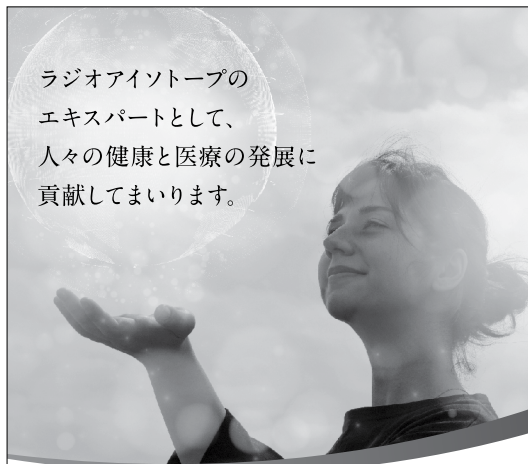


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# SATELLITE EVENTS

Details available at <https://icrp2023.jp/related-events/>

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## Symposium: Next Generation of Radiotherapy and Radioprotection Based on Precise Radiosensitivity

📅 6 November, 13:15 - 15:15 📍 Grand Nikko Tokyo Daiba, 29<sup>TH</sup> Floor

**Organisers:** Japanese Radiation Research Society supported by Radiation Biology Group, Japanese Society for Radiation Oncology and the JSPS Core-to-Core program

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## Symposium: Low Dose and Low Dose-rate Radiation Research: Moving Forward

📅 6 November, 15:30 - 17:30 📍 Grand Nikko Tokyo Daiba, 29<sup>TH</sup> Floor

**Organisers:** Institute for Environmental Sciences, Japan and Japanese Radiation Research Society

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## Symposium: Radiological Protection in Radioactive Waste Disposal – How We Manage Long-term Uncertainties?

📅 11 November, 10:00 - 12:30 📍 Grand Nikko Tokyo Daiba, 29<sup>TH</sup> Floor

**Organiser:** The Division of Nuclear Fuel Cycle and Environment of Atomic Energy Society of Japan

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## Symposium: Cataract Caused by Low-dose Radiation

📅 11 November, 13:00 - 14:30 📍 Grand Nikko Tokyo Daiba, 29<sup>TH</sup> Floor

**Organiser:** Japanese Society for Cataract Research

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## Annual Meeting of the Japanese Society of Radiation Safety Management

📅 11 - 13 November 📍 GRANSHIP (Shizuoka Convention & Arts Center)

**Organiser:** Japanese Society of Radiation Safety Management

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## Special Session: The Co-expertise Process

📅 12 November, 13:20 - 14:50 📍 Hokkaido University

**Organiser:** Society for Risk Analysis, Japan

# SATELLITE EVENTS

## **Symposium:** Gonadal Shielding in Radiology: How Do We Make Decisions While Understanding Ethical Issues?

 12 November, 14:00 - 17:00     Grand Nikko Tokyo Daiba, BI Floor

**Organisers:** The Japan Association of Radiological Technologists and Japanese Society of Radiological Technology

## **Invited Lecture:** Emergency Response to Accidents and Terrorism, Yann Billarand

 13 November, 10:00 - 11:00     GRANSHP (Shizuoka Convention & Arts Center)

**Organiser:** Japanese Society of Radiation Safety Management

## **Invited Lecture:** Radiation Dose to Patients in Diagnostic Nuclear Medicine, Augusto Giussani (Projected by JSMP-JSNMT-JSNM)

 16 November, 10:40 - 11:40     Congrès Convention Center, Grand Front Osaka, Osaka

**Organisers:** Japanese Society of Nuclear Medicine, Japanese Society of Nuclear Medicine Technology and Japan Society of Medical Physics

## **Invited Lecture:** Initiatives for Nuclear Medicine in ICRP, Jin Chul Paeng (Projected by JSMP-JSNMT-JSNM)

 16 November, 14:00 - 14:30     Congrès Convention Center, Grand Front Osaka, Osaka

**Organisers:** Japanese Society of Nuclear Medicine, Japanese Society of Nuclear Medicine Technology and Japan Society of Medical Physics

## **Invited Lecture:** Recent Developments and Future Challenges for ICRP Committee 3, David Sutton (Projected by JSMP-JSNMT-JSNM)

 16 November, 14:50 - 15:20     Congrès Convention Center, Grand Front Osaka, Osaka

**Organisers:** Japanese Society of Nuclear Medicine, Japanese Society of Nuclear Medicine Technology and Japan Society of Medical Physics

## **Symposium:** Radiological Protection Towards Advancements of Medicine (JSMP-JSNMT-JSNM Joint Symposium)

 16 November, 15:20 - 17:50     Congrès Convention Center, Grand Front Osaka, Osaka

**Organisers:** Japanese Society of Nuclear Medicine, Japanese Society of Nuclear Medicine Technology and Japan Society of Medical Physics

# ICRP2025

8<sup>TH</sup> INTERNATIONAL SYMPOSIUM ON THE SYSTEM OF RADIOLOGICAL PROTECTION  
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# ICRP 2023 Poster Hall Map

