Welcome and Introduction

ICRP 2021+1

6th International Symposium on the System of Radiological Protection

Vancouver, Canada

7 November 2022

Werner Rühm
ICRP Chair
HMGU

Development of ICRP Symposia

Welcome to Vancouver, Canada!

A lot of "first times" these days …

- **This is the first time that we all meet in person since the Adelaide Symposium in 2019**
- This is the first time that meet in person since the new Term started in 2021 (we had a 40% turn-over!)
- This is the first time that we have so many TG meetings at one place
- This first ICRP Symposium in Canada
- This is the first time for me as the Chair

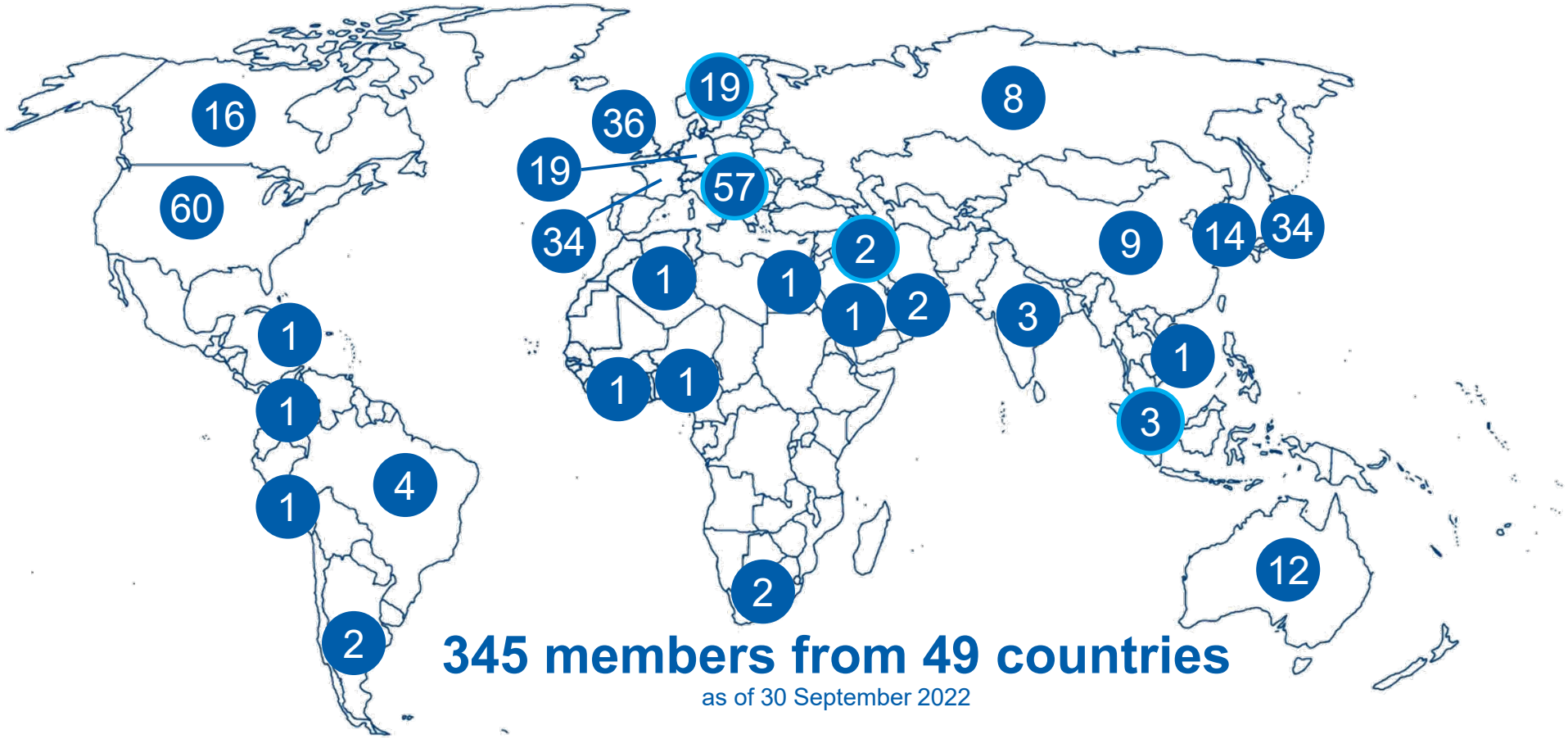
- Main Commission meeting on Sat Nov 5
- Continuing Education on Nov 5 and 6
- ICRP Plenary Session on Nov 6
- ICRP Symposium Nov 7-10
- Meetings of C1, C2, C3, C4
- Numerous TG meetings

All meetings will be held hybrid

Thanks to ICRP staff and others to organise this and meet all challenges!

Chris Clement, Kelsey Cloutier, Luana Hafner, Lynn Lemaire, Stephen Smith, Charlotte White, Takashi Yasumune, Hjungyoon Yu

ICRP Membership



345 members from 49 countries

as of 30 September 2022

Currently 30 Active ICRP Task Groups

TG36 Radiopharmaceutical Doses
TG91 Low-dose and Low-dose Rate Exposure
TG95 Internal Dose Coefficients
TG96 Computational Phantoms and Radiation Transport
TG97 Surface and Near Surface Disposal
TG98 Contaminated Sites
TG99 Reference Animals and Plants Monographs
TG103 Mesh-type Computational Phantoms
TG105 The Environment in the System of RP
TG106 Mobile High Activity Sources
TG108 Optimisation in Medical Imaging
TG109 Ethics in RP in Medicine
TG110 Veterinary Practice
TG111 Individual Response to Radiation
TG112 Emergency Dosimetry
TG113 Dose Coefficients for X-ray Imaging
TG114 Reasonableness and Tolerability
TG115 Risk and Dose for Astronauts
TG116 Imaging for Radiotherapy
TG117 PET and PET/CT
TG118 RBE, Q, and w_R
TG119 Diseases of the Circulato[illegible]n
TG120 Radiation Emerge[illegible] Malicious Events
TG121 Offspring an[illegible]enerations
TG122 Detrim[illegible]ulation for Cancer
TG123 C[illegible]ation Radiation-induced Effects
TG12[illegible]e Principle of Justification
TG125 Ecosystem Services
TG126 Human Biomedical Research
TG127 Exposure Situations and Categories of Exposure

First opportunity to meet in person!

Since Adelaide Symposium 2019

Recent Developments in the Secretariat

- **Since a few weeks, the Secretariat includes (again) two Assistant Scientific Secretaries**

Takashi Yasumune
Assistant Scientific Secretary,
Assistant Editor of Annual of the ICRP

Hyungjoon Yu
Assistant Scientific Secretary,
Assistant Editor of Annual of the ICRP

- **Since this year the Secretariat has a number of Technical Secretaries and Writers**

Abdulkadir Alaydarous (Technical Secretary), USA
Adrienne Ethier (Technical Secretary), Canada
Franklin Eze (Technical Secretary), Cyclomedical International, Nigeria
Camille Pacher (Technical Secretary), Canada
Boniface Kouamé Yao (Technical Secretary), Cote D'ivoire
Constantinos Zervides (Technical Secretary), Mediterranean Hospital of Cyprus / University of Nicosia Medical School, Cyprus
Suryakanta Acharya (Technical Writer), PAY-W Clinic, Assam Cancer Care Foundation, India
Barrington Brevitt (Technical Writer), Kingston Public Hospital South East Regional Health Authority , Jamaica

- **Announcement of a new position**

- Job opening for a Deputy Scientific Secretary

- Full-time, permanent position
- Based in Ottawa, Canada
- Open until January 31, 2023

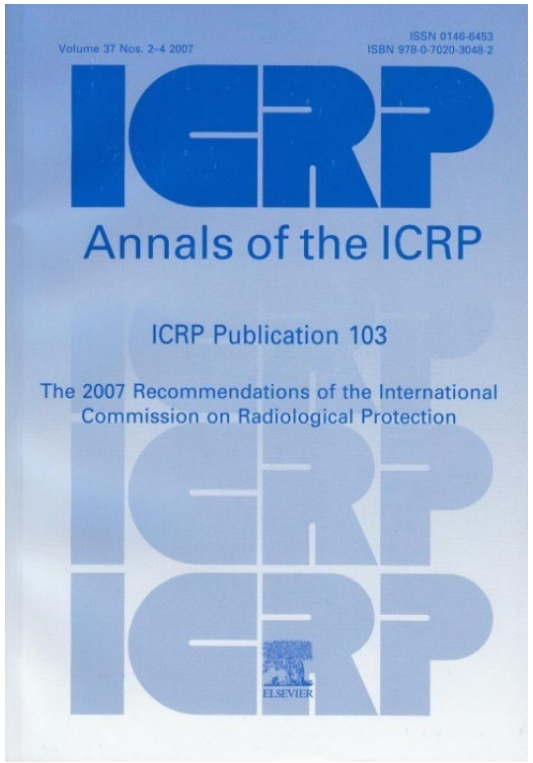
System Review Launched: The Next Decade

2019: The new BIG *joint* project of the ICRP

Review and revision of the last General Recommendations –

ICPR Publication 103 fro 2007

Together with all who are interested in radiological protection



Identify **basic open questions (“building blocks”)**: essential work required for the next general recommendations

Key Milestones so far (open access papers)

Keeping the ICRP recommendations fit for purpose

Clement et al 2021 J. Radiol. Prot. 41 1390
www.doi.org/10.1088/1361-6498/ac1611

Thoughts from ICRP & invitation to contribute

Areas of research to support the system of radiological protection

Laurier et al 2021 Radiat Environ Biophys 60, 519–530
www.doi.org/10.1007/s00411-021-00947-1

Thoughts from ICRP & invitation to contribute

Summary of the 2021 ICRP workshop on the future of radiological protection

Rühm et al 2022 J. Radiol. Prot. 42 023002
www.doi.org/10.1088/1361-6498/ac670e

ICRP Call for Action to Strengthen Expertise in Radiological Protection Worldwide

Lack of Support for Research, Education and Training in Radiological Protection

- IAEA-WHO: 2012 Bonn Call for Action
- NCRP 2015, US
- Salomaa et al. 2017, Europe
- Cho et al. 2019, International
- Ottolenghi et al. 2019, Europe
- SSK 2021, Germany
- Vasileva et al. 2021, International
- Linet et al. 2022, US
- NAS 2022, US

ICRP INTERNATIONAL COMMISSION ON RADIOLOGICAL PROTECTION

ICRP ref 4813-8023-9823
DRAFT 2 November 2022

NOT FOR CIRCULATION

ICRP Calls for Action to Strengthen Expertise in Radiological Protection Worldwide

1. **National governments and funding agencies strengthening resources for radiological protection research allocated by governments and international organisations.**
2. **National research laboratories and other institutions launching and sustaining long-term research programmes.**
3. **Universities developing undergraduate and graduate university programmes and making students aware of job opportunities in radiation related fields.**
4. **Using plain language when interacting with the public and decision makers about radiological protection.**
5. **Fostering general awareness of proper uses of radiation and radiological protection through education and training of information multipliers.**

UN Sustainable Development Goals (SDGs)

Relevance of Radiological Protection for the UN Sustainable Development Goals

- The trend of decreasing expertise in radiological protection will have a direct, negative impact on **SDG #3 "Good Health and Well-being"**.

  - Obviously, **SDG #4 "Quality Education"** is central to this issue.

- Existing inequalities in radiation protection capacities in various parts of the world set back the **SDG #10 "Reduced Inequalities"** within and among countries.

- Radiological Protection addresses protection not only of humans but also of the environment from detrimental effects of exposure to radiation. Consequently, expertise in radiological protection directly relates to **SDG #14 Life Below Water** and **#15 Life on Land**.

Reflections on Opportunities for Modern Societies

Safe radiation technologies allow for

- innovative medical diagnostic and treatment modalities,
- development of new materials,
- new radiation detection technologies,
- advanced long-term space exploration missions,
- long-term safety of disposal of radioactive waste, …

Improvement of public health by consideration of natural sources of ionising radiation

- Radon in dwellings and workplaces,
- Mining and extraction of oil and gas
- Natural radioactive material in the food chain
- Cosmic radiation

Sufficiently high level of competence

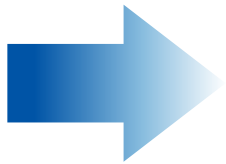
- Serves as a trustworthy source of information for stakeholders and the public
- Empowers people to make their own informed choices
- Avoids anxiety

ICRP actions to promote radiological protection expertise

- Since 2020, **ICRP Publications** have been made freely available after a 2 years embargo period
- Organisation of **digital workshops and webinars**
- Preparation of easy-to-read information through **ICRPÆDIA** (www.icrpaedia.org).
- In 2019, ICRP established a **mentorship programme** – as of now, about 30 mentees work in ICRP TGs

- See for example **digital workshop** last year, where the need for education and training in radiation research and radiation protection was highlighted by many participants.

- **But … ICRP is a charity organisation with limited financial resources available**



ICRP Calls for Action

Governments and Funding Organisations

Strengthen the resources allocated by national governments and international organisations to radiological protection research

National Research Laboratories

Launch and sustain long-term research programmes, for example in national research laboratories, on topics relevant for radiological protection

Universities

Offer students opportunities to participate in under-graduate and graduate university programmes

Education and Training

Foster education and training in radiological protection, particularly for professionals who act as educational/information multipliers,

Communication to the Public

Improve communication of the basics about the underlying science and principles of the current System of Radiological Protection.

Will be published in the open literature in due course

The Conflict in Ukraine – the Reaction of ICRP

NOW FREE TO ACCESS

ICRP Publication 146

Radiological Protection of People and the Environment in the Event of a Large Nuclear Accident

NOW AVAILABLE

ICRP Advice for the Public on Protection in Case of a Nuclear Detonation

The Conflict in Ukraine – the Reaction of ICRP

Work done by TG120

- It summarises what is known
- Is written in plain language (hopefully) easy to understand
- Initially, the Terms of Reference of the TG did not include nuclear detonations
- At the recent MC meeting last months, however, it was decided to extend the scope of this TG and include detonation of small nuclear devices
- On a longer term, the TG may also deal with large-scale explosions

TG120 Membership

- Anne Nisbet (UK) Chair
- Volodymyr Berkovskyy (Ukraine)
- Yann Billarand (France)
- Peter Bryant (UK)
- Brooke Buddemeier (USA)
- Chunsheng Li (Canada)
- Jennifer Mosser (USA)
- Carlos Rojas Palma (Belgium)
- Shogo Takahara (Japan)
- Adrienne Ethier (Techn. Secretary, Canada)
- Zhanat Carr (Repr. WHO, Switzerland)

+ Chris Clement (Scientific Secretary, ICRP)

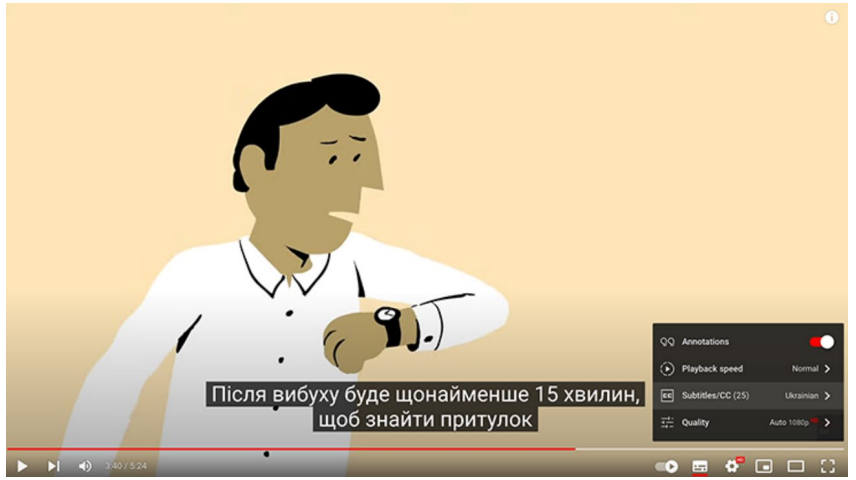
Task Group 120

Radiological Protection for Radiation Emergencies and Malicious Events

The Conflict in Ukraine – the Reaction of ICRP

THE FIRST 10 MINUTES
THE FIRST 24 HOURS
UNDERSTAND THE HAZARDS
HOW TO BE PREPARED FOR A NUCLEAR DETONATION
RESPONDING TO ALERTS

Video on Youtube



- Officially announced on 12 October at the European Radiation Protection Week
- Translated in **12 languages**
- Further translations are under way
- https://www.icrp.org/page.asp?id=611
- **Update to include > 24h planned**

Radiological Protection – The Next Generation

Monday, November 7

09:30 – 11:00 Welcome & Bo Lindell Lecture

11:30 – 13:00 Review and Refinement of the Fundamentals of Radiological Protection

14:00 – 15:30 Emerging Domains of Radiological Protection

16:00 – 17:30 Involving Young Professionals

Tuesday, November 8

08:45 – 09:30 The Future is Now: Solving Climate Crisis with Existing Technology – B McDonald

09:30 – 11:00 Ethical Considerations, Implementation of the System of Radiological Protection

11:30 – 13:10 Student Paper Contest Winners & Cousins Award Finalists

14:00 – 15:30 Innovations in Dosimetry

16:00 – 17:30 Radiological Protection and the Public

Radiological Protection – The Next Generation

Wednesday, November 9

08:45 – 09:30 *(Un)stated Assumptions: Values, Ethics, and RP (R Velshi, Canada)*

09:30 – 11:00 Broadening Optimisation of Protection (Panel Discussion)

11:30 – 13:00 Optimisation of Protection in Emergency Response and Recovery

14:00 – 15:15 Effects and the System of Radiological Protection

16:00 – 17:30 Effects Part 2: Transfer / Incorporation of Science into the RP System

Thursday, November 10

08:45 – 09:30 *Radiation Science + Communications for Future Nuclear (F Dermarkar, Canada)*

09:30 – 11:00 Advances in Medical Radiological Protection

11:30 – 13:00 Optimisation of RP at Nuclear Power Plants and the Nuclear Fuel Cycle

14:00 – 15:30 Learning from Experience (Panel Discussion)

16:00 – 17:30 Next Steps (Closing Session)

Radiological Protection – The Next Generation

On Behalf of the Hosting Organisations

The Canadian Radiation Protection Association (CRPA)

Canadian Nuclear Safety Commission
Commission canadienne de sûreté nucléaire

The Canadian Nuclear Safety Commission (CNSC)

Health Canada Santé Canada

Health Canada

Enjoy the Symposium, … Enjoy the meetings, … Enjoy Vancouver!

Acknowledgement

To All ICRP Members

- For their continuous dedication to the work of ICRP
- Especially during the pandemic
- Despite the challenges due to the pandemic, ICRP has been able to keep pushing forward thanks to the dedication of our volunteers and staff.

To Our Symposium Partners

THANK YOU!

www.icrp.org