

NEA International Radiological Protection School (IRPS)

Preparing Tomorrow's Radiological
Protection Leaders

22-26 August 2022

Stockholm University

Sweden



PROGRAMME



International Radiological Protection School



Stockholms
universitet



Strål
säkerhets
myndigheten

Swedish Radiation Safety Authority

ORGANISERS

The International Radiological Protection School (IRPS) is organised by the OECD Nuclear Energy Agency (NEA) in co-operation with the Swedish Radiation Safety Authority (SSM) and the Centre for Radiation Protection Research (CRPR) of Stockholm University. The IRPS 2022 session will be held at the CRPR in Stockholm, Sweden.

For further information regarding logistics, please contact
(irps@oecd-nea.org).

IRPS 2022 web page:
www.oecd-nea.org/IRPS2022

PROGRAMME (22-26 August 2022)

Day 0 – Sunday 21 August 2022

Registration of participants and welcome reception from 16:00 – 18:00 CEST

Day 1 – Monday 22 August 2022

Registration of participants from 8:00 - 8:45 CEST.

Welcome	
9.00	<p>Welcome addresses by the organisers</p> <ul style="list-style-type: none"> • William D. Magwood, IV, NEA Director-General • Nina Cromnier, Director General of the Swedish Radiation Safety Authority (SSM) • Stockholm University representative (tbc) <p>30 minutes (10 minutes per organisation)</p>
9.30	<p>Welcome by the on-site faculty and NEA staff</p> <ul style="list-style-type: none"> • NEA to present logistics, objectives, etc. • Participants and on-site faculty to briefly introduce themselves <p>15 minutes</p>

The RP system – Past, present and future I		
<p><i>The basics:</i></p> <p>This topic will present a summary of the key aspects of the international system of radiological protection, and what they mean in regulation and practice. It is an introduction to the science, principles and structures that form the framework.</p>		
9.45	<p>International radiological protection framework – The essentials</p> <p>The evolution and prevailing spirit of the international system of radiological protection will be summarised, on the basis of the RP system as it exists today, taking ICRP Publication 103 into account, and how it evolved from ICRP Publication 60 (i.e. the previous sets of general recommendations).</p> <p>45 minutes + 15 minutes discussion</p>	<p><i>Richard Wakeford</i></p> <p><i>Jack Valentin</i></p>

10.45	Break	
10.55	<p>Principles of radiological protection: justification, optimisation, dose limitation – related dose criteria</p> <p>The three principles of the system will be described, along with how they evolved and how they apply.</p> <p>45 minutes + 15 minutes discussion</p>	<p><i>Ann McGarry</i></p> <p><i>Jack Valentin</i></p>
11.55	Lunch Break	

The RP system – Past, present and future II

Today's system of radiological protection and the challenges it faces:

This module will discuss the underlying principles of the application of the international system of radiological protection, as well as the challenges it currently faces, such as RP of the environment, ethical considerations, or decommissioning and waste management.

12.55	<p>RP constraints and reference levels</p> <p>This session will discuss the use of numerical constraints as part of the process of identifying the optimum protection solution in a given circumstance.</p> <p>45 minutes + 15 minutes discussion</p>	<p><i>Jack Valentin</i></p> <p><i>Ann McGarry</i></p>
13.55	<p>Radiological protection – Ethics</p> <p>Focus will be on the ICRP's views on the ethics of radiological protection.</p> <p>45 minutes + 15 minutes discussion</p>	<p><i>Nicole Martinez</i></p> <p><i>Deborah Oughton</i></p>
14.55	Break	
15.05	<p>Overview of recommendations, standards and regulations: ICRP, International BSS, Euratom BSS, NCRP</p> <p>The RP framework includes recommendations, standards and regulations, all of which have different purposes and different wording. The coherence of key documents, their differences and their application will be discussed.</p> <p>60 minutes + 15 minutes discussion</p>	<p><i>Chris Clement</i></p> <p><i>Haridasan Pappinisseri</i></p> <p><i>Stefan Mundigl</i></p> <p><i>Mike Boyd</i></p> <p><i>Nicole Martinez</i></p> <p><i>Kathryn Higley</i></p>
16.20	Break	

Application – Case study 1

16.30	Managing public and occupational exposure to radon Case study covering different aspects of protection against Radon Exposure; Radon Measurements; Reference Level; Remediation and management with examples and possible solutions.	Ann McGarry Haridasan Pappinisseri
18.30	End of day 1 - Food truck and beverages	



IRPS-2019.

Day 2 – Tuesday 23 August 2022

The RP system – Past, present and future II (<i>cont'd</i>)		
9.00	<p>Areas of significant evolution throughout the successive fundamental recommendations</p> <p>The new RP system, as described in ICRP Publication 103, is a significant change from the previous system set out in ICRP publication 60. This presentation will describe some of the most significant changes, the experience that motivated their evolution, and provide a short assessment of the ongoing work on the new fundamental recommendations.</p> <p>45 minutes + 15 minutes discussion</p>	<p><i>Jack Valentin</i></p> <p><i>Ann McGarry</i></p>
10.00	<p>Health risk estimates, dose criteria and the use and limitations of the effective dose</p> <p>The numerical criteria recommended by the current RP system will be discussed along with their intended uses. The lecture will also develop the effective dose concept as well as its use in different contexts.</p> <p>45 minutes + 15 minutes discussion</p>	<p><i>Richard Wakeford</i></p> <p><i>Chris Clement</i></p>
11.00	Break	
11.20	<p>From practice/intervention to exposure situations</p> <p>This is one of the significant principal evolution areas in the current RP system, and the idea and nuances of this new approach will be discussed.</p> <p>45 minutes + 15 minutes discussion</p>	<p><i>Jack Valentin</i></p> <p><i>Ann McGarry</i></p>
12.20	Lunch Break	
13.20	<p>RP of the environment</p> <p>The framework, the underlying concepts and application of protection of the environment in the different exposure situations will be developed with a focus on the way it was created and how it evolves.</p> <p>45 minutes + 15 minutes discussion</p>	<p><i>Jacqueline Garnier- Laplace</i></p> <p><i>David Copplesstone</i></p>
14.20	<p>Decommissioning & waste management from a RP perspective</p> <p>A general introduction to decommissioning and the associated safety priorities, with specific consideration of RP aspects, and the management of radioactively contaminated waste materials from an environmental perspective.</p> <p>45 minutes + 15 minutes discussion</p>	<p><i>Simon Carroll</i></p> <p><i>David Copplesstone</i></p>
15.20	Break	

Application – Case study 2

15.50

Decommissioning, clearance and site release, with a focus on radiological protection of the environment

Participants will consider aspects of a nuclear reactor decommissioning scenario, the various safety priorities and how these might change during decommissioning. The case study will also consider how environmental assessments can help to determine the best environmental outcome for disposal of radioactively contaminated waste from an environmental perspective.

*David
Coplestone
Simon Carroll*

17.50

End of day 2



Image: IRPS-2019.

Day 3 – Wednesday 24 August 2022

State of the art of RP science		
<i>What we know, and what we don't know:</i>		
This session will address: the state of the art in radiobiology, in epidemiology, in medical application of ionising radiation, as well as the role and mission of UNSCEAR. RP and occupational exposure will also be addressed.		
9.00	<p>Radiation biology</p> <p>The most up-to-date scientific understanding of the biological interactions of ionising radiation will be discussed.</p> <p>A practical exercise in observing cell chromosomal damage will be proposed.</p> <p>45 minutes + 15 minutes discussion</p>	<i>Andrzej Wojcik</i>
10.00	<p>Radiation epidemiology</p> <p>The epidemiological results provided by various exposed populations will be discussed: the fundamental and compelling evidence on the health effects of radiation exposure observed in the Japanese survivors of atomic bombs (often referred to as the life span study); findings from other cohorts such as medically, environmentally, or occupationally exposed groups.</p> <p>45 minutes + 15 minutes discussion</p>	<i>Dominique Laurier Richard Wakeford</i>
11.00	Break	
11.20	<p>UNSCEAR</p> <p>The lecture will describe the role, purpose and work programme of UNSCEAR in the RP landscape, and will give some examples of scientific evaluations recently achieved.</p> <p>30 minutes + 15 minutes discussion</p>	<i>Borislava Batandjieva-Metcalf Ferid Shannoun</i>
12.05	Lunch Break	
13.05	<p>Overview of occupational radiological protection at a nuclear power plant</p> <p>The lecture will summarise the radiological protection challenges that exist on an operating pressurised water reactor then will describe the engineering controls and organisational arrangements that are used to optimise radiation doses.</p> <p>45 minutes + 15 minutes discussion</p>	<i>Guy Renn Thierry Schneider</i>

State of the art of RP science (cont'd)

14.05	RP in diagnostic and therapeutic healthcare The lecture will describe how the system applies to RP of patients and healthcare professionals, with many examples. 45 minutes + 15 minutes discussion	<i>Kimberly Applegate</i> <i>Mika Kortensniemi</i>
15.05	Break	

Application – Case study 3

15.35	Clinical accident and biological dosimetry The 2001 Bialystok accident (www.iaea.org/publications/6749/accidental-overexposure-of-radiotherapy-patients-in-bialystok) will be discussed with focus on management, dose reconstruction and medical treatment of the victims.	<i>Andrzej Wojcik</i> <i>William Small</i>
17.35	End of day 3 - Vasa Museum visit and dinner	



Image: IRPS-2019.

Day 4 – Thursday 25 August 2022

The RP system – Towards a more holistic approach		
<p><i>New dimensions of a more holistic approach to RP over the last decade:</i></p> <p>This module will discuss some of the most important influences on the radiological protection system over the last decade, opening it from a purely science-based to a more holistic approach, increasingly taking into account socio-economic factors.</p>		
9.30	<p>Social science and sound communication to support RP</p> <p>This session will describe the importance of social sciences and stakeholder relationships to facilitate the understanding of concerns and the communication of scientific knowledge to support informed RP decisions.</p> <p>45 minutes + 15 minutes discussion</p>	<p><i>Deborah Oughton</i></p> <p><i>Nicole Martinez</i></p>
10.30	<p>Stakeholder involvement and prevailing circumstances</p> <p>This discussion will focus on the importance of prevailing circumstances that drive radiological concerns, and on optimum protection solutions.</p> <p>45 minutes + 15 minutes discussion</p>	<p><i>Mike Boyd</i></p> <p><i>Thierry Schneider</i></p>
11.30	Break	
11.45	<p>Experience from former accidents – from emergency to recovery</p> <p>This session will draw on lessons learnt from former accident experiences, in particular from the Chernobyl and Fukushima accidents, to describe a framework for the protection of people and the environment in a nuclear accident. It will also provide a useful introduction to the subsequent case study on emergency and recovery management.</p> <p>45 minutes + 15 minutes discussion</p>	<p><i>Toshimitsu Homma</i></p> <p><i>Thierry Schneider</i></p>
12.45	Lunch Break	
13.45	<p>Risk communication</p> <p>The session will cover the principles of risk communication related to RP, how to identify and influence your target audience perception, how to develop and implement techniques to achieve effective communication, and how to manage misinformation/disinformation in today's world.</p> <p>45 minutes + 15 minutes discussion</p>	<p><i>Salah Al Hashimi</i></p> <p><i>Deborah Oughton</i></p>
14.45	Break	

Application – Case study 4

15.15	Emergency and recovery management The case study will confront the participants with the multidimensional nature of nuclear emergency and recovery management in practice, based on the challenges experienced in the mid-term and recovery phase of the Fukushima Daiichi Nuclear Power Plant accident. Participants will assess a case study scenario and address key issues, such as: preparedness; responsibilities and their evolution; justification of protective actions; or holistic optimisation of protection.	<i>Thierry Schneider</i> <i>Toshimitsu Homma</i>
17.15	End of day 4	



Image: IRPS-2019.

Day 5 – Friday 26 August 2022

Wrapping up		
9.30	<p>Mini-workshop on challenges in applying the RP system</p> <p>Participants are invited to send short abstracts prior to the school start in which they depict a past or future situational example presenting RP challenges, possibly from their professional experience. Two speakers will open the session to present examples from the private and the public sector perspective. Three participant abstracts will be presented.</p> <ul style="list-style-type: none"> • Keynote from the World Nuclear Association (15') • Keynote from the European Commission (Euratom) (15') • Presentation (participant abstract) (10') • Presentation (participant abstract) (10') • Presentation (participant abstract) (10') <p>Q&A and roundtable discussion with all participants and faculty on examples, fields of interest and practical experience. (60')</p>	<p><i>Sama Bilbao y León</i></p> <p><i>Stefan Mundigl</i></p> <p><i>Richard Wakeford with all of the faculty</i></p>
11.30	Break	
11.45	<p>Role of and ongoing work under the NEA's Committee on Radiological Protection and Public Health (CRPPH)</p> <p>A short introduction to the role that the NEA's CRPPH plays and has played in the International System of Radiological Protection and its current Programme of Work.</p> <p>20 minutes + 10 minutes discussion</p>	<p><i>Thierry Schneider</i></p> <p><i>NEA staff</i></p>
12.15	Lunch Break	
13.15	<p>Interactive session on case studies Q&A</p> <p>Reflecting on the case study sessions from Days 2-4 and giving the participants the opportunity to ask questions.</p> <p>90 minutes</p>	<p><i>Case study lecturers</i></p>
15.00	Break	
15.15	<p>Self-assessment quiz</p> <p>A multiple choice-quiz to allow participants a self-assessment of their learning progress during the week. Results of this test will not be shared with anyone outside the IRPS, except if anonymised before.</p> <p>60 minutes</p>	<p><i>Richard Wakeford with all of the faculty</i></p>
16.15	<p>Closing</p> <p>15 minutes</p>	<p><i>Richard Wakeford</i></p> <p><i>NEA staff</i></p>

Questions and contact information

Nuclear Energy Agency (NEA)
Division of Radiological Protection and Human Aspects of Nuclear Safety

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