



Stockholm University
Centre for Radiation Protection Research

Stockholm University Research Centre for Radiation Protection Research
CRPR

www.crpr-su.se

Summary of activities during 2019

Introduction

With the establishment of CRPR in October 2008, Stockholm University wants to promote excellence and long term national competence in radiation protection research. Stockholm University has a long standing tradition in education and research on the effects of ionizing radiation on man and the environment. The location of CRPR at the Stockholm University provides CRPR with a unique set up of radiation facilities for investigations of effects of different dose rates and radiation qualities. CRPR shall promote international cooperation and invite colleagues from Sweden and Europe to use the radiation exposure facilities.

The Centre was created as an independent unit within the Department of Genetics, Microbiology and Toxicology (GMT) at Stockholm University at the Science Faculty of Stockholm University and comprises researchers who are active within the fields of radiobiology, radioecology and radiation dosimetry. In January 2013 GMT fused with two other institutes to form the new Department of Molecular Biosciences, The Wenner-Gren Institute – MBW (<http://www.su.se/mbw/>).

The Centre is headed by a Board of five members, one for each of the three research fields and two others whose competence is judged to be of value for the Centre's operation. The Board members and the chairperson of the board are appointed for three years by the Chancellor based on the recommendations of the Board of the Faculty of Science. The Board has the overall responsibility for the Centre's operation and programme.

The Head of the Centre is appointed for a three year period by the chancellor after hearing the Faculty of Sciences and the board of MBW. The head of the Centre shall not be a member of the board. The Head of the Centre is in charge of the daily activities and should be an employee of the University.

The activities of the Centre are financed from external sources.

From 2013, the webpage of CRPR is <http://www.crpr-su.se>.

Activity during 2019

Head CRPR 2019

Andrzej Wojcik, Professor, MBW, Stockholm University

CRPR board 2019

Eva Forssell-Aronsson, Professor, Chairperson, Dept of Radiation Physics, Sahlgrenska Academy at University of Gothenburg

Karolina Stark, utredare, SSM

Iuliana Toma-Dasu, Professor, Medical Radiation Physics, Stockholm University and Karolinska Institutet

Mats Harms-Ringdahl, Professor emeritus, MBW Stockholm University

Clare Bradshaw, Associate professor, Department of Ecology, Environment and Plant Sciences, Stockholm University

The CRPR board met twice during 2019: 19 June 2019 and 04 December 2019. The minutes from the meetings are attached at the end of this document.

Support has been provided for the CRPR activities by the Swedish Radiation Safety Authority (SSM).

The activities of the CRPR during 2018 are described below.

Workshops and international courses

A one week OECD course “NEA International Radiological Protection School (IRPS)” was organised at the Stockholm University during 20-24 August 2018. The course was attended by ca 4 participants from 25 countries and was a joint effort by NEA, SSM and CRPR. The program of the meeting is attached at the end of this document.

The 2019 European Radiation Protection week was organised at the Stockholm University 14-18 October 2019. Andrzej Wojcik was the scientific secretary. A report of the meeting is attached at the end of this document.

Andrzej Wojcik participated in a Hirosaki University : Stockholm University collaboration seminar in Hirosaki, Japan on 12th November 2019. A program of the seminar is attached at the end of this document.

Other activities 2019

CRPR is one of the founding members of the MELODI association that started 2010 (<http://www.melodi-online.eu/>). MELODI is a European Platform dedicated to low dose radiation risk research. MELODI will propose R&T priorities for Europe in its field of competence and will seek the views of stakeholders on the priorities for research, keep them informed on progress made, and contribute to the dissemination of knowledge. CRPR is represented in MELODI by Andrzej Wojcik who was also elected as the chair of MELODI during the general assembly meeting 17 October 2019.

CRPR organized a course in radiation biology (15 credits) at Stockholm University for undergraduate and master students (20 March – 01 June 2019).

CRPR organized a European training course (CELOD, 23 April -) at Stockholm University, within the Education and Training program of CONCERT.

Since June 2015 CRPR participates in the European Joint Programme CONCERT - <http://www.concert-h2020.eu/en>. CRPR is a task leader in WP6 on Education and Training. CONCERT is operating as an umbrella structure for the research initiatives jointly launched by the radiation protection research platforms MELODI, ALLIANCE, NERIS and EURADOS.

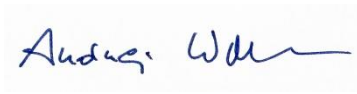
CRPR is a member of the project entitled: "How can teachers support the development of scientific literacy through teaching about risk and risk assessment?" The project is a collaboration between the SU, KI the Blackeberg gymnasium and the Tumba gymnasium in Stockholm. It is funded by the "Skolforskningsinstitutet". The web page is here: <http://www.riskedu.se/>.

Andrzej Wojcik gave several lectures on health effects of radiation at the Blackeberg gymnasium and the Internationella Engelska Gymnasiet. Moreover, a field trip was organised with students from the Internationella Engelska Gymnasiet to the Ytterby mine, where natural background radiation was measured.

Several students from the the Internationella Engelska Gymnasiet carried our small research projects at the CRPR.

CRPR financially supported the meeting of SWE-RAYS, August 2019, Lund University.

Andrzej Wojcik represented CRPR at the 2019 ICRP meeting in Adelaide, Australia (17-23 November 2019) and, together with Eva Forssell-Aronsson, the 65th UNSCEAR meeting in Vienna (10 – 14 June 2019).



Andrzej Wojcik

Stockholm, 2020 12 01

Head of CRPR

Attachment: Minutes of CRPR council meetings
Program of the OECD NEA school in radiation protection
Report on the ERPW 2019.
Program of the Hirosaki University – Stockholm University seminar 12 November 2019

Minutes of the board meeting of CRPR

19th June 2019, 09:00 – 11:30

Stockholm University, Room E515, Svante Arrheniusväg 20C, floor 5,

People present: Clare Bradshaw, Iuliana Toma-Dasu, Karolina Stark, Andrzej Wojcik

Clare was asked to chair the session in the absence of Eva.

Opening of the meeting

Meeting was opened.

Approval of agenda

Agenda was approved.

Minutes from meeting 2018 10 25

Minutes were approved

Information from MELODI (Andrzej)

Andrzej informed about MELODI activities: Andrzej joined the executive council in October 2018, workshop on non-cancer diseases was organised in Spain in spring 2019, Thomas Jung will step down as chair during the ERPW2019 meeting in October in Stockholm.

Information from Kärnavfallsrådet

Mats not here, Andrzej informed: Mats will stay as member for coming two years, a visit was organised to BFS in Berlin early during 2019.

Information from SSM (Karolina)

Nina Cromnier – new DG. New research chief - Per Selborg, Karolina joined in May, one more scientific secretary will join in September 2019. Positions in radiation ecology are announced, deadline August 2019. Deadline for small projects extended till end of August. Other positions will be announced soon, details not yet decided. Reference group created to collaborate with EURATOM.

Information from ALLIANCE (Karolina)

Joint roadmap is being worked on, updating SRA, NORM and food chain groups will meet to discuss road maps, meetings during ERPW.

Information from CONCERT (Andrzej)

CONCERT will finish in May 2020, last call for courses was decided. CELOD 2020 course secured funding.

Information from RENE B (Andrzej)

Coming intercomparison will be organised in Lund after the ERPW meeting. Simulation of the Cochabamba bus accident. Local organiser: Christopher Räff, in collaboration with EURADOS.

Information from ICRP/UNSCEAR (Andrzej)

ICRP meeting 2019 in Adelaide in November 2019. Local organiser: Carl-Magnus Larsson. Andrzej will participate. Task Group 111 on factors influencing individual response to radiation started in Autumn 2018. A new task group on radiation-induced genetic effects is planned.

UNSCEAR meeting in Vienna during week 24. Approved reports: 1) Evaluation of selected health effects and inference of risk due to radiation exposure; 2) Lung cancer from exposure to radon. Discussed reports being written: 1) Biological mechanisms influencing health effects from low-dose radiation exposure; 2) Levels and effects of radiation exposure due to the accident at the Fukushima Dai-ichi nuclear power station: implications of information published since the 2013 UNSCEAR report; 3) Medical exposure to ionising radiation; 4) Occupational exposure of workers to ionizing radiation. New projects that will start in 2020: 1) secondary primary cancers after radiotherapy; and 2) epidemiological studies on radiation-induced cancer.

Information about ERPW 2019 (Andrzej)

Preparation for the meeting proceeding according to plan. Deadline for abstract submission extended to 14th July 2019. Karolina will ask Charlotta Fred if a new person should replace her in the organising committee.

Information about EURATOM 2019 call (Andrzej)

Andrzej informed about RADONORM coordinated by BFS and Clare informed about proposal coordinated by SCK-CEN.

Economy for 2019/2020 (Andrzej)

Current account stand: 36000 SEK. 30000 SEK will go to support the 2019 Swe-Rays meeting in August in Lund.

Planning for activities 2019/2020 (All)

Individual radiosensitivity workshop 2020, Andrzej will apply to SSM including support for the workshop. In 2021: 10th anniversary of the Fukushima accident, a workshop is considered.

Additional issues

Iuliana: Medical Physics Department has to move, but not decided where and when. 4 PhD projects currently running, one financed by SSM.

Next meeting

Possible dates: 4-5 November 2019, Andrzej will send e-mail and ask (6-7 November: SSM forskningsdagarna in Nora Latin).

Minutes of the board meeting of CRPR

4th December 2019, 09:30 – 12:00

Stockholm University, Room E515, Svante Arrheniusväg 20C, floor 5

People present: Mats Harms-Ringdahl, Clare Bradshaw, Iuliana Toma-Dasu, Karolina Stark, Andrzej Wojcik

Mats was asked to chair the session in the absence of Eva.

1. Opening of the meeting

The meeting was opened by Mats

2. Approval of agenda

Agenda was approved

3. Minutes from meeting 2019 06 19

Minutes were approved.

4. Information from MELODI

Andrzej was elected as chair for 2 years during ERPW2019 (Thomas Jung resigned earlier). New ExC members: Elisabeth Cardis and Ulrike Kulka.

New task group created to evaluate the performance of MELODI - Sisko is chair.

MoU will be signed soon to create the MEENAS umbrella organisation to represent platforms at EURATOM and organise the next EJP. The objections of some MELODI members against signing the MoU were discussed.

ERPW2020 to take place in Lisbon 28/9 - 2/10 2020.

5. Information from Kärnavfallsrådet

Meeting 2019 12 03. Writing "Kunskapsläget rapport" on nuclear waste handling. To be published in February 2020. Mats will represent KAR in the Reference Group of SSM.

SKB has delivered a new FUD rapport which is under "remiss". Meeting with SSM director took place. Final repository: government must take a decision in 2020.

6. Information from SSM

Reference group was formed to create a forum for EURATOM work. Started in summer 2019. Representatives: CRPR, SAINT, VINNOVA (NCP), universities, perhaps also Miljödepartementet will join, SKC. Next meeting: early 2020. Aim of the group: to work on the content of future EURATOM calls.

Working on the research plan for 2020. Less money available for 2020. New research secretary Cheuk Lau (expert in nuclear safety).

Comments on CRPR: send reports on time. Update the website (remove info on support from SKB).

Two positions announced in radioecology: 3 applications. Financing to Mats Eriksson in Linköping U. Radiobiology: financing for Eva Forssell-Aronsson and Andrzej. Ecology: Mats Isaksson.

Suggestions for next year: open call for future research leaders (younger researchers) in radiation protection.

7. Information from ALLIANCE

Updating the SRA will be finished soon. Discussions on MoU. Joint Roadmap is being written. Member number is rather stable. SU should become a member. Clare will apply.

8. Information from SAINT (Swedish Academic Initiative in Nuclear Technology and Radiation Science)

CRPR joint a meeting in summer 2019. An initiative was discussed on education in radiation protection. Next meeting in January 2020 in Linköping. Experience was shared on teaching experience.

SAINT prepares a SSF application on genIV reactors. Not clear whether this is a SAINT initiative or an initiative initiated via SAINT. The coordinator is Ane Håkansson from UU.

9. Information from "Sievert Centrum"

An initiative of Region Stockholm and SU to investigate the need to create a radiation medicine centre. Henrik Cederquist nominated Lovisa to prepare a draft application. KS decided to step off and postpone the application to 2020. Name of the centre not decided yet (Sievert Centre is a preliminary name). Next meeting is planned for 18th December, organised by Matthias Hedman. Discussions are ongoing about reviving Swedish radiation oncology.

10. Information from CONCERT

CONCERT will end in May 2020

Final meeting: Madrid 11-13/3 2020

Final round of travel grants: 31/12 2019

11. Information from RENEB

Last exercise in Lund after ERPW 2019, simulation of Cochabamba accident.

Ongoing exercise with Columbia University on neutron calibration curve (project funded by NIH).

12. Information from UNSCEAR (66 meeting 10-14 June 2019)

Swedish delegation: Ingemar Lund (representative), Eva Forssell-Aronsson (vice-representative), Andrzej Wojcik (expert), Peter Hofvander (expert)

New UNSCEAR secretary: Borislava Batandjieva-Metcalf.

New council for 66 and 67 sessions: Gillian Hirth (Australia) chair, Jing Chen (Canada), Anna Friedl (Germany), Jin Kyung Lee (South Korea - vice chair) Ingemar Lund (Sweden, rapporteur).

Approved reports:

1) Evaluation of selected health effects and inference of risk due to radiation exposure (lead writer: Wolfgang Müller)

2) Lung cancer from exposure to radon (lead: Per Strand)

Ongoing reports:

1) Biological mechanisms influencing health effects from low-dose radiation exposure (lead: Simon Bouffler)

2) Levels and effects of radiation exposure due to the accident at the Fukushima Dai-ichi nuclear power station: implications of information published since the 2013 UNSCEAR report.

3) Medical exposure to ionising radiation

4) Occupational exposure of workers to ionizing radiation

New decided reports:

1) Second primary cancers after RT (lead: Laurence Lebaron-Jacobs, CEA)

2) Epidemiological studies on radiation-induced cancer (update UNSCEAR 2006)

13. Information from NKSSF

Last meeting by telephone on 29/12 2019

Discussion on candidates for "Gold (Sievert) medal", 3 candidates suggested by ICRP. The awarding ceremony is scheduled for the next IRPA Congress in Seoul, Korea in May 2020.

Planned symposium on 21 April 2020: Etiska frågeställningar inom strålskydd nu och i framtiden. Speakers: Thierry Schneider and Jack Valentin.

14. Information from ICRP

ICRP Meeting in Adelaide 17 - 24/11 2019, in connection with an international conference Working on next recommendations (last ones: 60 in 1990 and 103 in 2007). Possible changes discussed: e.g. individualisation of protection system, revision of weighting factors, elimination of equivalent dose, new definition of detriment, etc.

Membership term ends in Spring 2021, expected rotation of 25% of members. 4 members of MC will retire: Clare Cousins, Jacques Lochard, John Harrison, Carl-Magnus Larsson.

Next general meeting: November 2021 Vancouver.

C1 will meet in Stockholm 31 August - 02 September 2020

TG 111 will meet in Stockholm 4-5 September 2020

15. Information about ERPW 2019

Number of registered attendees: 256

Number of posters: 77

Number of oral presentations: 89

Number of registered participants without a presentation: 90

Number of early career researchers: 46

Number of exhibiting companies: 2

General critics: Silo approach (too many parallel sessions, too esoteric = platform specific).

Andrzej sent report to other platforms, problem will be discussed in scientific committee of ERPW 2020.

Finances: win of ca 400 000 SEK

16. Information about EURATOM 2019 call

NRFP 12: 3 big applications for 18 M€ each

NRFP 14: 2 applications, Iuliana and Andrzej participate in SINFONIA (6M€)

Decision about funding: February/March 2020

17. Economy for 2020

Andrzej applied to SSM for 130 tkr

Suggestion to use the win from ERPW 2019 to support individual sensitivity workshop

18. Planning for activities 2020

3rd OECD/NEA school at SU, 17-21 August 2020

Individual sensitivity workshop

Seminar on justification of dose limits

19. Additional issues

None

20. Next meeting

Spring 2020, Andrzej will create a Doodle

NEA International Radiological Protection School (IRPS)

Preparing Tomorrow's Radiological
Protection Leaders

19-23 August 2019
Stockholm University
Sweden



PROGRAMME



International Radiological Protection School



Stockholms
universitet



Strål
säkerhets
myndigheten

Swedish Radiation Safety Authority

Background

Since shortly after the discovery of X-rays and natural radiation, experts in both national and international fora have worked towards establishing the international radiological protection (RP) system. International organisations have contributed to the evolution of this RP system by sharing state-of-the-art scientific knowledge and experience accumulated over many decades, all of which have continued to refine the principles of the RP system. These principles have largely been accepted worldwide and have served as a basis for national regulations and guidelines.

While guidance and standards documents describe the technical facts in relation to the RP system, the body of understanding that they reflect, including how the different elements have evolved, are not well documented. To appropriately and effectively apply the RP system to existing and emerging situations, the “spirit” of the RP system – its nuances and history – need to be fully understood by tomorrow’s leaders.

In an effort to respond to this challenge, the OECD Nuclear Energy Agency decided to establish the International Radiological Protection School (IRPS) to provide a clear understanding of the RP system and how it is intended to be interpreted for application in diverse and emerging circumstances.

Objectives and key topics

The experts who contributed to the RP system's creation provide an historical overview of how and why the RP system evolved, as well as a deep understanding of what the system is intended to mean. The programme, held over five days, includes sessions built on a mix of presentations and illustrative case studies. Objectives and topics covered include:

- understanding the foundation of the international RP framework – detriment, dose and other fundamentals;
- understanding how the RP system's key features are applied in RP regulation and implementation;
- understanding the state of the art: radiological aspects of biological, epidemiological and social science;
- understanding differences and similarities of principles and standards at the international and national levels (e.g. the International Commission on Radiological Protection [ICRP], the International Atomic Energy Agency Basic Safety Standards [IAEA-BSS], the European Basic Safety Standards Directives [EU-BSS], the National Council on Radiation Protection and Measurements [NCRP]);
- exploring the RP system: past, present and future, including lecturer and participant perceptions, experiences and suggestions in relation to the potential direction of the RP system;
- building a system of protection around exposure situations: new approaches in international guidance;
- evolving issues: ethics, naturally occurring radiological material (NORM) and public communication;
- building leadership and stakeholder engagement skills as an undercurrent of the more technical aspects of topics described above.

General information

Organisers and venue

The IRPS is organised by the OECD Nuclear Energy Agency in co-operation with its member countries. The second session will be held at the Centre for Radiation Protection Research (CRPR), Stockholm University, with the support of the Swedish Radiation Safety Authority (SSM).

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

IRPS 2019 web page:
www.oecd-nea.org/rp/irps

Accommodation

Three suggestions for hotels near the venue:

1. [Clarion Collecton Taptö](#), Jungfrugatan 57, 11531 Stockholm
2. [Gärdet Hotel and Hostel](#), Sandhamnsgatan 59a, 11528 Stockholm
3. [Elite Hotel Arcadia](#), Körsbärsvägen 1, 114 23 Stockholm

Language

All presentations, discussions and meeting documents will be in English.

General information

Location

The workshop is held at:

Svante Arrhenius väg 20C, 10691 Stockholm ([map](#))

Lecture room E306.

The reception will take place in the lobby in front of the E306 room, starting at 18:00.



Programme – 18-19 August 2019

Sunday, 18 August 2019		
18:00	Welcome reception	
Monday, 19 August 2019		
08:00	Registration	
09:00	Welcome <ul style="list-style-type: none"> • Yeonhee Hah, Head of Division NEA/RP-HANS, OECD Nuclear Energy Agency (NEA) • Nina Cromnier, Director General of the Swedish Radiation Safety Authority (SSM) • Prof Ylva Engström, Vice Dean (prodekan), Natural Sciences Faculty Stockholm University 	
09:30	Introduction: IRPS logistics, structure, objectives, teaching methodology and expected outcomes Participants: Self-introductions and issues of interest	Ted Lazo
Starting point: Introduction to the science, principles and structures that form the framework		
<i>Overview of where we currently are:</i>		
This session will present a summary of the key aspects of the international system of radiological protection, and what they mean in regulation and practice.		
10:00	1. The International Radiological Protection Framework -1 This presentation will describe the RP system as it exists today, taking ICRP 103 into account, and the RP system that was based on ICRP 60.	Richard Wakeford
11:00	Break	

Programme – 19 August 2019

Starting point: Introduction to the science, principles and structures that form the framework (cont'd)		
11:15	<p>2. The International Radiological Protection Framework -2</p> <p>This presentation will continue the description of the International RP framework.</p>	Richard Wakeford
12:00	<p>3. RP challenges in science and application (ethics)</p> <p>This presentation will provide a broad understanding of the ICRP's views on the ethics of radiological protection.</p>	Nicole Martinez
13:00	Lunch	

The RP system: Past, present and future		
<p><i>From past to present: The How and the why, along with nuances and remaining issues:</i></p> <p>This session will address: the evolution and prevailing spirit of the international system of radiological protection; optimisation as the key RP principle in the internal system; how optimisation is applied in an all-hazards, case-by-case fashion; and issues posed by participants.</p> <p>Case studies will be used to illustrate the practical regulation, application and ethical challenges that arise when implementing the international system of radiological protection.</p>		
14:00	<p>4. Justification</p> <p>This presentation will focus on the important nature of "justification", discussing how it is regulated, applied, and approved.</p>	Ann McGarry
15:30	Break	

Programme – 19 August 2019

The RP system: Past, present and future <i>(cont'd)</i>		
16:00	<p>5. Case study 1: Radiological protection of the environment</p> <p>Following a presentation on RP of the environment, participants will break into groups to assess a case study and address key issues such as elements of:</p> <ul style="list-style-type: none"> • justification of protective actions • optimisation of protection • operational criteria • stakeholder Involvement in decision making • ethical aspects • communications strategy <p><i>This session will be organised as follows:</i></p> <ul style="list-style-type: none"> • Plenary presentation of topic (30 min) • Plenary presentation of case study (10 min) • Breakout group discussions (50 min) • Plenary discussion of breakout group views (30 min) 	<p>David Copplesstone and Jacqueline Garnier- Laplace</p>
18:00	End of first day / On Campus Reception	

Programme – 20 August 2019

The RP system: Past, present and future <i>(cont'd)</i>		
09:00	6. Optimisation <p>This presentation will focus on the important nature of optimisation of protection, which is now described as the central principle of the RP system. Discussions will address how optimisation is regulated, applied and approved, and what aspects should be considered in different circumstances.</p>	Ted Lazo
10:30	Break	
11:00	7. Dose constraints and reference levels <p>This presentation will discuss the use of numeric constraints as part of the process of identifying the optimum protection solution in a given circumstance.</p>	Jack Valentin
12:30	Lunch	
13:30	8. Application of dose limits <p>This presentation will discuss the use of dose limits as a regulatory tool, in particular how it is applied under different circumstances.</p>	Ann McGarry
15:00	Break	

Programme – 20 August 2019

The RP system: Past, present and future (<i>cont'd</i>)		
15:30	<p>9. Case study 2: Managing public and occupational radon exposure</p> <p>Following a presentation on radon and its implications, participants will break into groups to assess a case study and address the key issues, such as:</p> <ul style="list-style-type: none"> • justification of protective actions • optimisation of protection • risk communication and low dose effects • stakeholder involvement in decision making • ethical aspects • communications strategy <p>This session will be organised as follows:</p> <ul style="list-style-type: none"> • Plenary presentation of topic (30 min) • Plenary presentation of case study (10 min) • Breakout group discussions (50 min) • Plenary discussion of breakout group views (30 min) 	<p>Augustin Janssens and Ann McGarry</p>
17:30	End of second day	

Programme – 21 August 2019

The RP system: Past, present and future (cont'd)		
09:00	<p>10. Social science and sound communication support radiological protection</p> <p>This presentation 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>	Deborah Oughton
10:00	Break	
10:30	<p>11. Practice/intervention to exposure situations</p> <p>This is one of the most significant principle evolution areas in the current RP system, and the idea and nuances of this new approach will be discussed.</p>	Jack Valentin
12:00	Lunch	
13:00	<p>12. Numerical criteria</p> <p>There are many numerical criteria recommended by the current RP system. These and their intended uses will be described in this presentation.</p>	Richard Wakeford
14:00	<p>13. Overview of recommendations, standards and regulations: ICRP, BSS, etc.</p> <p>The RP framework includes recommendations, standards and regulations, all which have different purposes and different wording. This presentation will discuss the coherence of key documents, their differences and their application.</p>	Chris Clement, Olga German and Augustin Janssens
15:00	Break	

Programme – 21 August 2019

The RP system: Past, present and future <i>(cont'd)</i>		
15:30	<p>14. Case study 3: Emergency and recovery management</p> <p>Following a presentation on emergency management and recovery management, participants will break into groups to assess a case study and address the key issues, such as:</p> <ul style="list-style-type: none"> • preparedness • responsibilities and their evolution • justification of protective actions • holistic optimisation of protection • radiological and psychological risk balance • risk communication and low dose effects • stakeholder involvement in decision making • ethical aspects • communications strategy <p><i>This session will be organised as follows:</i></p> <ul style="list-style-type: none"> • Plenary presentation of topic (30 min) • Plenary presentation of case study (10 min) • Breakout group discussions (50 min) • Plenary discussion of breakout group views (30 min) 	Ted Lazo
17:30	End of third day / Vasa Museum visit and Dinner	

Programme – 22 August 2019

The RP system: Past, present and future <i>(cont'd)</i>		
09:00	<p>15. Stakeholder involvement and prevailing circumstances</p> <p>This presentation will focus on the importance of prevailing circumstances that drive radiological concerns, and on optimum protection solutions.</p>	Ted Lazo
10:00	<p>16. Individual risk and the RP toolbox</p> <p>This presentation will discuss the uncertainty of understanding the radiological risk to a given individual, and the approaches that can be used to characterise an individual's risk.</p>	Richard Wakeford
11:00	Break	
11:30	<p>17. Areas of significant evolution</p> <p>The new RP system, as described in ICRP publication 103, is a significant change from the previous system, ICRP publication 60. This presentation will describe some of the most significant changes and the experience that motivated their evolution.</p>	Jack Valentin
12:30	Lunch	
13:30	<p>18. Discussion of participant issues</p> <p>Participants were asked to provide the IRPS organisers with suggestions on specific RP issues that they face so that these could be discussed and experience could be exchanged.</p>	Richard Wakeford
15:30	Break	

Programme – 22 August 2019

The RP system: Past, present and future (cont'd)		
16:00	<p>19. Case study 4: Decommissioning, clearance and site release</p> <p>Following a presentation on installation decommissioning, material clearance, and site clean-up for release (free or conditional), participants will break into groups to assess a case study and address the issues, such as:</p> <ul style="list-style-type: none"> • justification of protective actions • holistic optimisation of protection • knowledge management and staffing • waste management and recycling • risk communication and low dose effects • stakeholder involvement in decision making • social, economic and ethical aspects • communications strategy <p>This session will be organised as follows:</p> <ul style="list-style-type: none"> • Plenary presentation of topic (30 min) • Plenary presentation of case study (10 min) • Breakout group discussions (50 min) • Plenary discussion of breakout group views (30 min) 	<p>Olga German and Ted Lazo</p>
18:00	End of fourth day	

Programme – 23 August 2019

State-of-the-art radiological protection 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 and in medical use of radiation, and it will present an overview of how social science is increasingly important for resolving radiological protection issues.		
09:00	<p>20. Radiation biology</p> <p>This presentation will discuss the most up-to-date scientific understanding of the biological interactions of ionising radiation, and will include a practical exercise in observing cell damage.</p>	Andrzej Wojcik
11:00	Break	
11:30	<p>21. Epidemiology - 1</p> <p>This presentation will describe, in two parts, the characterisation of the most up-to-date epidemiological studies; our understanding of the shape of the dose/response curve; and the level of uncertainty in terms of response to low-dose exposures.</p>	Richard Wakeford
12:30	Lunch	
13:30	<p>21. Epidemiology - 2</p> <p>This presentation will continue the description of state-of-the-art epidemiology.</p>	Richard Wakeford
14:30	<p>22. Radiological protection in diagnostic and therapeutic healthcare</p>	Sören Mattsson
16:00	Break	

Programme – 23 August 2019

IRPS closing session		
16:30	23. IRPS summary points: Key take away This presentation will address the most significant aspects of the week's discussions.	Richard Wakeford
17:00	24. Feedback Participants will be invited to provide their feedback in terms of the strong points of the IRPS and aspects that could be improved.	Richard Wakeford
17:30	25. Closing Ted Lazo	
17:45	End of IRPS	

Report of the scientific secretary from the ERPW2019 meeting

Stockholm, 14-18 October 2019

Overall statistics of ERPW2019

Number of registered attendees: 256

Number of posters: 77 (77 submitted abstracts)

Number of oral presentations: 89 (87 submitted abstracts)

Number of registered participants without a presentation: 90

Number of early career researchers: 46

Number of exhibiting companies: 2

Distribution of research areas/interests

When submitting an abstract, the participant was asked to check the following options:

I am an early career researcher (PhD student or <5 years post-PhD)

- YES
- NO

The abstract fits to the following research topic/platform/project:

- Radioecology (ALLIANCE)
- Dosimetry (EURADOS)
- Medical radiation (EURAMED)
- Low dose research (MELODI)
- Emergency preparedness (NERIS)
- Retrospective individual dosimetry (RENEB)
- Education and training (E&T)
- Project funded by CONCERT
- Other

Checking several options was possible. The table below shows the distribution of selected options. ECR: early career researcher.

ALLIANCE	EURADOS	EURAMED	MELODI	NERIS	RENEB	E&T	CONCERT	Other	ECR
23	35	40	42	13	7	10	24	16	46

Apart from scientific sessions, there were 20 business meetings held by platforms/associations/programs. An overview of these meetings is given in Annex 1.

The structure of the ERPW2019 meeting

The overall concept of the meeting was strongly based on the ERPW2016 in Oxford, with 3 parallel sessions devoted to each platform/association and interlaced plenary sessions also devoted to each platform/association. The platforms/associations decided on the content of their sessions. Some chose to fill them with invited speakers while others selected the speakers from the submitted abstracts. An agreement was reached by the members of the scientific committee to maximize the number of oral presentations given by early career researchers.

There were two stand-alone poster sessions. During spring 2019 a suggestion was submitted by Almudena Real and approved by the scientific committee to organize an interdisciplinary, plenary session devoted to open access publication. Moreover, ca 1 month before the ERPW meeting, the MELODI executive council came up with the idea to organize a session entitled “quo vadis platforms & European Joint Program (EJP)?”. Because of late date, this session, which should really have been a plenary one, was organized as a parallel slot, kindly offered by CONCERT.

Some thoughts on future ERPW meetings

The ERPW originated from annual MELODI meetings to become a meeting of all platforms with the aim to integrate the represented radiation research areas. The first ERPW was held in 2016 in Oxford, followed by 2017 in Paris and 2018 in Rovinj. The 2017 meeting was not representative because it was run together with ICRP as a big international meeting. The Rovinj meeting was strongly dominated by MELODI and CONCERT members for reasons that are not clear to me.

Some platforms organize their own annual meetings and, during the 2019 meeting, the purpose of ERPW meetings was questioned by several platform representatives. Especially questioned was the sense of organising parallel sessions, where platforms presented results relevant only for their members, not at all contributing to the envisaged integration process. This point of criticism is justified and demonstrates the necessity to ponder on the aim and shape of future ERPW meetings.

During the “quo vadis” session Andre Jouve made it very clear that a single umbrella organization must be created to represent the interests of the platforms and communicate with EURATOM. Such organization is currently being shaped and future ERPW meetings are a natural forum for this umbrella organization to meet and discuss the way forward (quo vadis). Discussions of the way forward should not be confined to platform executive councils, but carried out openly, to increase transparency. Hence, perhaps a plenary “quo vadis” session should be an integral element of an ERPW. It could include discussions on the common roadmap and also on the state of the, hopefully coming, CONCERT 2 EJP (whatever form it will acquire).

An important question to consider is how many parallel sessions should be organized? Should sessions be organised as “esoteric platform slots” or should they be more interdisciplinary? An important aspect of the ERPW2019 was the attempt to maximize the number of oral presentations given by early career researchers. Reducing the number of parallel sessions will result in fewer oral presentations and it can be expected that this will particularly disadvantage early career researchers. Also, it may, in the long run, reduce the number of submitted abstracts. It may not be forgotten that many (especially early career) researchers receive travel support only when presenting their data. Hence, the reduced number of oral sessions must be compensated by longer and/or more frequent stand-alone poster sessions.

Listed below are some suggestions for future ERPW meetings with the aim to foster integration and to ensure a continuous development and improvement of the meetings.

- Include representatives of early career researchers (perhaps via EURAYS) in the scientific committee
- Include a plenary “quo vadis” session to discuss the common way forward of the platforms and developments in EURATOM funding policy
- Include a satellite education session for early career researchers (analogously as SIT sessions of Rad Res meetings)
- Include session(s)/lectures devoted to reports from (selected) running EURATOM-funded projects (presented preferentially by early career researchers)
- Include session(s) devoted to reporting on new developments in ICRP (news from Task Groups) and UNSCEAR (reports from reports under preparation) and perhaps new implementation of BSS (like recently on radon and NORM)
- Include interdisciplinary, overview lectures, for example: basics of radiation biology, basics of radioecology, basics of dosimetry, basics of radiotherapy, basics of epidemiology, what is AOP, radiotherapy treatment planning systems, retrospective individual dosimetry, radiation risk perception, radiation accidents, radiation protection aspects of spent fuel repositories, generation IV NPPs, radiation risk in space, etc.
- Include debates on relevant topics of interest, analogous to Bob Painter debates of Rad Res and ICRR meetings, for example: DDREF – is it justified, should a dose threshold be included in radiological protection, should the radiological protection system be individualized, can basic research/AOP approach contribute to reducing uncertainties in radiological protection, etc.
- Introduce the tradition that ERPW organisers prepare a report on meeting statistics and conclusions. This report could be made available on the website of the future umbrella organisation.



Andrzej Wojcik

Chair of the ERPW2019 scientific committee

Annex 1

Overview of business meetings held outside the ERPW2019 program.

Business meetings by invitation

Please see maps at the end of this file for location details. Rooms Polstjärnan, Mimer, Kungstenen, Bergsmannen and Spelbomskan are in the Aula Magna building on floor 7. Vivi Täckholm (Q211) and E211 are in the building of the Arrhenius laboratories.

Monday 14 October

Polstjärnan	Kungstenen	Vivi Täckholm Q211	Catering
09:30 – 13:00 RENEB	09:00 -11:00 CONFIDENCE WP7	13:00 – 17:00 CONCERT Management Board	10:00 – 10:30 coffee
15:00 – 17:30 SHAMISEN SINGS	13:00 – 17:00 ALLIANCE Marine Working Group		12:00-13:00 lunch
	17:00 – 19:00 MELODI Executive Council		15:00 – 15:30 coffee
			17:00 sandwiches

Catering will be served in the Gallery of Aula Magna and outside Vivi Täckholm.

Tuesday 15 October – no meetings

Wednesday 16 October

Polstjärnan	Mimer
10:00 – 13:00 CONCERT WP2-WP3	12:00 – 14:00 CONCERT WP6
	14:00 – 16:00 CONFIDENCE WP4

Thursday 17 October

Polstjärnan	Mimer	Kungstenen	Bergsmannen	Spelbomskan
17:30 – 19:00 EURAMED Executive Board meeting 1	17:30 – 19:30 NERIS Management Board and R&D	17:30 – 18:30 MELODI Scientific Advisory Board	19:00 – 21:00 MELODI General Assembly	17:30 – 19:30 ALLIANCE General Assembly

Catering will be served in the Gallery of Aula Magna at 17.30.

Friday 18 October

Polstjärnan	Mimer	Kungstenen	Spelbomskan	Catering
08:30 – 15:00 EURADOS IM2020 Scientific Committee	08:00 – 09:00 MENEAS	09:00 – 13:00 NERIS management Board and R&R	09:00 – 10:30 EURAMED General Assembly	10:00 – 10:30 coffee
	09:00 – 15:00 ALLIANCE Strategic Research Agenda			12:00-13:00 lunch

Catering will be served in the Gallery of Aula Magna.

09:00 – 16:00 EURADOS WG10 meeting in room E210 (Svante Arrhenius väg 20C) – no catering

Stockholm - Hirosaki Collaboration Seminar On Radiation Biology 2019



弘前大学

12th
Nov.
2019
16:30

Yasushi Mariya

Vice-president, Mutsu general Hospital

“Outcome of combined external beam radiotherapy and Ra-223 radionuclide treatment for castration resistant prostate cancer with multiple bone metastases.”

Andrzej Wojcik

Prof., Centre for Radiation Protection Research, MBW, Stockholm University

“Evidence for synergistic interaction of alpha particles and photons”

When/Where

Tue. November 12th 2019

16:30 start

**Graduate Lecture Room-1 (F-1-2),
Hirosaki University Graduate
School of Health Sciences**

This seminar is conducted as a part of project "JSPS KAKENHI No.17KK0181, Satoru Monzen."

Co-sponsorship:

Research Center for biomedical Sciences Global Human Resources Development Division.

Radiation Emergency Medicine Resources Development Committee.

Contact

Us:

**HIROSAKI
UNIVERSITY**

Graduate School
Of Health Sciences
Research Center for
Biomedical Sciences
Kuwata, Kashimura
rcbs2016@
hirosaki-u.ac.jp
0172-39-5518