

SESSIONS

2023 AGENDA DAY ONE - 03/07/2023

36th Annual Radiological Protection Summer School

3 - 7 July 2023
University of Cambridge Christ's College
Cambridge

Getting ready: Registration & Welcome

10:00 - 10:45

Chairman's welcome

10:45 - 11:00

Participants

Pete Burgess - Radiation Measurement Advisor,
Radiation Metrology Ltd

Dose Quantities for Internal and External Exposure

11:00 - 12:00

- Outlining quantities and units for exposure
- From organ dose to effective dose
- Monitoring operational quantities of external radiation
- Explaining the technical principles of dosimetry
- Identifying quantities for internal exposure
- Examples of monitoring of internal exposure

Participants

Christopher Perks - , Personal Dosimetry and
Radiation Protection Specialist

Lunch

12:00 - 13:00

Biological Effects of Ionising Radiation

13:00 - 14:15

- Understanding the basic interactions of radiation with DNA, cells and tissues
- The importance of radiation track structure in determining biological response
- Explaining stochastic and deterministic effects
- Radiation risk: epidemiology, the LNT approach and uncertainties

Participants

Mark Hill - Head of Radiation Biophysics, Oxford
Institute for Radiation Oncology, University of Oxford

Radiation Protection in Medical and Veterinary settings

14:15 - 15:15

Participants

Hugh Wilkins - Consultant, Radiation Consultancy
Services Ltd

Afternoon Break

15:15 - 15:30

The System of Radiological Protection

15:30 - 16:30

Close of Day 1

16:30 - 17:15

Optional Walking Tour of Cambridge

17:15 - 18:15

Taking part in the walking tour gives you the chance to see some of the most breath-taking sights Cambridge has to offer including a look at the famous King's College Chapel

Dinner

19:30 - 20:30

SCHEDULE

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TIME	
10:00	10:00 - Getting ready: Registration & Welcome 10:45 - Chairman's welcome
11:00	11:00 - Dose Quantities for Internal and External Exposure
12:00	12:00 - Lunch
13:00	13:00 - Biological Effects of Ionising Radiation
14:00	14:15 - Radiation Protection in Medical and Veterinary settings
15:00	15:15 - Afternoon Break 15:30 - The System of Radiological Protection
16:00	16:30 - Close of Day 1
17:00	17:15 - Optional Walking Tour of Cambridge
19:00	19:30 - Dinner

SESSIONS

2023 AGENDA DAY TWO - 04/07/2023

36th Annual Radiological Protection Summer School

3 - 7 July 2023
University of Cambridge Christ's College
Cambridge

Exploring Environmental Radioactivity

09:15 - 10:15

Participants

James Penfold - Director, Quintessa

Optimisation in Environmental Situations

10:15 - 11:00

Participants

James Penfold - Director, Quintessa

Morning Coffee

11:00 - 11:15

Communicating Radiation Risks

11:15 - 12:00

Participants

Hugh Wilkins - Consultant, Radiation Consultancy Services Ltd

Lunch

12:00 - 13:00

Safe Transport of Radioactive Materials

13:00 - 14:00

Afternoon Coffee and Discussion Break

14:00 - 15:00

Understanding Instrument Selection

15:00 - 16:00

- Analysing the purpose of monitoring
- Understanding radiation sources
- Learning how to select the appropriate monitoring equipment
- Understanding instrument ergonomics

Participants

Pete Burgess - Radiation Measurement Advisor, Radiation Metrology Ltd

Practical Application of Instrument Selection

16:00 - 16:45

Select a monitoring problem and debate in groups on the best instrument to use

Participants

Pete Burgess - Radiation Measurement Advisor, Radiation Metrology Ltd

Close of Day 2

16:45 - 16:50

Punting on the River

17:30 - 18:30

Enjoy taking part in a relaxing activity with other delegates and speakers. Try your hand at steering the boat or sit back, relax and soak in the beautiful sights of Cambridge.

Dinner

19:30 - 20:30

SCHEDULE

2023 AGENDA DAY TWO - 04/07/2023

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TIME	
09:00	09:15 - Exploring Environmental Radioactivity
10:00	10:15 - Optimisation in Environmental Situations
11:00	11:00 - Morning Coffee 11:15 - Communicating Radiation Risks
12:00	12:00 - Lunch
13:00	13:00 - Safe Transport of Radioactive Materials
14:00	14:00 - Afternoon Coffee and Discussion Break
15:00	15:00 - Understanding Instrument Selection
16:00	16:00 - Practical Application of Instrument Selection 16:45 - Close of Day 2
17:00	17:30 - Punting on the River
19:00	19:30 - Dinner

Radiation Protection in the Nuclear Fuel Cycle

09:00 - 09:40

Operational Health Physics

09:40 - 10:30

- Overview of the pressurised water reactor
- Outlining the principal radiological hazards
- Identifying radiologically significant tasks
- Examining the practical aspects of ALARP
- Understanding human performance, RP performance indicators and benchmarking

Participants

Neil Hayman - Accredited Health Physicist and Discharge Standards Engineer, Sizewell B Power Station

Morning Coffee

10:30 - 10:45

Emergencies and Contingency Planning

10:45 - 11:45

- Reviewing major accidents/incidents
- Utilising contingency planning and preparation
- undertaking emergency organisation
- Assessing countermeasures, recovery and reassurance monitoring

Participants

Pete Burgess - Radiation Measurement Advisor, Radiation Metrology Ltd

Interactive Exercise: Emergency and Contingency Planning

11:45 - 12:45

Delegates will be asked to work in groups to consider the HP provisions required in emergency/contingency plans for a number of facilities.

Participants

Pete Burgess - Radiation Measurement Advisor, Radiation Metrology Ltd

Lunch

12:45 - 13:45

Non-ionising Radiation – Electromagnetic Fields and Optical Radiation

13:45 - 14:45

- The electromagnetic spectrum – effects on people
- Explaining the Control of EMF and Control of Artificial Optical Radiation Regulations
- Reviewing some sources of non-ionising radiation in the workplace

Participants

Raj Bungler - Laser Protection Adviser and Non-ionising Radiation Specialist, Aurora Health Physics Services

Afternoon Tea and Discussion

14:45 - 15:05

Environmental Regulation in the UK

15:05 - 16:05

How to Remove Radioactive Substances Regulations

16:05 - 17:05

Close of Day 3

17:05 - 17:10

SCHEDULE

2023 AGENDA DAY THREE - 05/07/2023

36th Annual Radiological Protection Summer School

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University of Cambridge Christ's College
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TIME	
09:00	09:00 - Radiation Protection in the Nuclear Fuel Cycle 09:40 - Operational Health Physics
10:00	10:30 - Morning Coffee 10:45 - Emergencies and Contingency Planning
11:00	11:45 - Interactive Exercise: Emergency and Contingency Planning
12:00	12:45 - Lunch
13:00	13:45 - Non-ionising Radiation – Electromagnetic Fields and Optical Radiation
14:00	14:45 - Afternoon Tea and Discussion
15:00	15:05 - Environmental Regulation in the UK
16:00	16:05 - How to Remove Radioactive Substances Regulations
17:00	17:05 - Close of Day 3

Natural Radioactivity and NORM

09:00 - 10:00

Participants

David Read - Professor of Radiochemistry, University of Surrey

Data Quality Objectives for Nuclear Plant and Fuel Cycle Facility Radioactive By-product Characterisation

10:00 - 11:00

- Developing a radioactive byproduct characterisation strategy
- Data Quality Objectives (DQOs)
- Quality Assurance Objectives (QAOs)
- Measurement Quality Objectives (MQOs)
- Waste stream identification - sample types and sizes
- Characterisation methods
- Materials Accountability (MA)
- Classification by Source (CS)
- Dose-to-Activity (DTA) Measurements
- Direct Measurement (DM)
- Scaling factors for difficult-to-measure radionuclides
- Process Knowledge (PK)
- Evaluating uncertainties and interferences
- Building context in radioactive byproduct characterisation
- Basic software quality assurance when using spreadsheets

Participants

James Hylko - Radioactive Byproduct Characterisation & E = 0 Safety Concept, Independent Consultant

Morning Coffee

11:00 - 11:15

Radiological Protection in the Design of the EPR (European Pressurised Reactor)

11:15 - 12:15

- Analysing the design approach
- Learning from past experiences
- Estimating the levels of radiation
- Protecting site personnel

Participants

Drake Daniel - Radiation Protection Engineer, Edvance UK Branch

Lunch

12:15 - 13:15

Radiation Protection in the Submarine Environment

13:15 - 14:00

Participants

Commander Mark Chambers RN - Head of Radiation Protection, Chartered Radiation Protection Professional & Radiation Protection Adviser, Royal Navy

Challenges for the non-nuclear RPA

14:00 - 14:45

Participants

Raj Bungler - Laser Protection Adviser and Non-Ionising Radiation Specialist, Aurora Health Physics Services

Afternoon Tea

14:45 - 15:00

Risk, Hazard Identification and Mitigation

15:00 - 16:15

Review of classical risk concepts

- Likelihoods and consequences.
- Systems and society

Conducting an activity hazard review

- Field walkdowns

Applying the E=0 safety concept

Energy sources

- Chemical
- Electrical Alternating (AC) and direct (DC) currents
- Gravitational objects
- Hydraulic
- Mechanical
- Pneumatic
- Radiation
- Thermal

Potential Energy

- Stored energy that can be drawn upon to do work

Kinetic Energy

- Energy from moving objects

Achieving a "Safe State" of E = 0

Monitoring progress when implementing safety/management programs

- Quantitative and qualitative markers
- Daily and weekly metrics

Review sample case study

Participants

James Hylko - Radioactive Byproduct Characterisation & E = 0 Safety Concept, Independent Consultant

Workshop: Hazard Identification and Mitigation

16:15 - 17:15

Identify and mitigate known and suspect hazards when encountering different scenarios.

Participants

James Hylko - Radioactive Byproduct Characterisation & E = 0 Safety Concept, Independent Consultant

Close of Day 4

17:15 - 17:20

SESSIONS

2023 AGENDA DAY FOUR - 06/07/2023

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Gala Dinner

19:00 - 21:00

Enjoy your last evening at the Summer School with a four-course meal. Dress to impress!

SCHEDULE

2023 AGENDA DAY FOUR - 06/07/2023

36th Annual Radiological Protection Summer School

3 - 7 July 2023
University of Cambridge Christ's College
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TIME	
09:00	09:00 - Natural Radioactivity and NORM
10:00	10:00 - Data Quality Objectives for Nuclear Plant and Fuel Cycle Facility Radioactive By-product Characterisation
11:00	11:00 - Morning Coffee 11:15 - Radiological Protection in the Design of the EPR (European Pressurised Reactor)
12:00	12:15 - Lunch
13:00	13:15 - Radiation Protection in the Submarine Environment
14:00	14:00 - Challenges for the non-nuclear RPA 14:45 - Afternoon Tea
15:00	15:00 - Risk, Hazard Identification and Mitigation
16:00	16:15 - Workshop: Hazard Identification and Mitigation
17:00	17:15 - Close of Day 4
19:00	19:00 - Gala Dinner

SESSIONS

2023 AGENDA DAY FIVE - 07/07/2023

36th Annual Radiological Protection Summer School

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The International Nuclear and Radiological Event Scale

09:00 - 09:30

Participants

Hugh Wilkins - Consultant, Radiation Consultancy Services Ltd

Brexit Insight – How could this effect Radiological Protection?

09:30 - 09:55

Protecting the Public After a Big Release of Nuclear Radiation

09:55 - 10:55

Morning Coffee

10:55 - 11:15

Certificates for the course will be handed out during this break

Radiation Safety Culture

11:15 - 12:00

Participants

Hugh Wilkins - Consultant, Radiation Consultancy Services Ltd

Introduction to Human Factors

12:00 - 12:45

Participants

Hugh Wilkins - Consultant, Radiation Consultancy Services Ltd

Chairman's Closing Remarks

12:45 - 13:00

Close of Course

13:00 - 13:05

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2023 AGENDA DAY FIVE - 07/07/2023

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TIME	
09:00	09:00 - The International Nuclear and Radiological Event Scale 09:30 - Brexit Insight – How could this effect Radiological Protection? 09:55 - Protecting the Public After a Big Release of Nuclear Radiation
10:00	10:55 - Morning Coffee
11:00	11:15 - Radiation Safety Culture
12:00	12:00 - Introduction to Human Factors 12:45 - Chairman's Closing Remarks
13:00	13:00 - Close of Course