

Book by  
**Friday 30 March**  
and **save £200!**

**23rd Annual Residential**

# Radiological Protection Summer School

Monday 16 – Friday 20 July 2012, Christ's College, Cambridge

#### Your radiological protection lecturers include:

- EDF Energy
- Sellafield Limited
- Magnox Limited
- International Commission on Radiological Protection (ICRP), Canada
- Areva RMC
- Nuvia Limited
- Royal Navy
- Health & Safety Executive
- Physikalisch-Technische Bundesanstalt, Germany
- Scottish Environment Protection Agency (SEPA)
- RPA 2000 Assessing Body
- University College London Hospitals  
NHS Foundation Trust

#### Just some of the learning objectives for 2012 include:

- Practical measures for dealing with **NORM**
- **Dose quantities** for **internal** and **external exposure**
- Assessing current developments in **biology** and **genetics**
- Examining the practical aspects of **ALARP**
- Design approach of the **European Pressurised Reactor**
- **Security** of radioactive **sources**
- Selecting **instruments** and appropriate **monitoring of equipment**
- Assessing **countermeasures, recovery** and **reassurance monitoring**
- Learning about **hazards** and **minimising risks**
- Applying the **ALARA principle**
- **Protecting** the **public** from radiation exposure

“ *The course was very informative and well presented.  
I will never forget this week in my whole life* ”

N Mmutle, National Nuclear Regulator, South Africa  
(Radiological Protection Summer School 2011 delegate)

**CPD Scheme:**

**26 Points maximum**

(52 points maximum if assessment taken)

For the latest programme or to register please visit [www.ibcenergy.com/rp](http://www.ibcenergy.com/rp)

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Set in the beautiful surroundings of Christ's College, Cambridge, the 23rd Radiological Protection Summer School will provide an in-depth look at a broad range of Radiological Protection issues.

Themes being covered include biological effects, risk, healthcare, pressurised reactors, the environment, medicine, safety, emergency planning and instrument selection, making the Course ideal for both newcomers to the industry as well as already established professionals

## Supporting your training portfolio

The syllabus has been extensively revised in order to assist delegates to demonstrate and achieve qualified expert status, as required by the Euratom Directive (96/29/Euratom). The revised syllabus is based on that set out under UK regulations on the knowledge and training required by a Radiation Protection Advisor and a Radioactive Waste Adviser (new in 2011) (the equivalent of a qualified expert for the UK). In particular, the course includes the "core competence" requirements and topics are covered so as to provide "basic understanding" and "general awareness", and a good introduction to the "detailed understanding" topics, as appropriate (see [www.srp-uk.org/rpa2000](http://www.srp-uk.org/rpa2000)). The course is also very useful to people applying for Chartered status with the Society for Radiological Protection when they don't have a recognised RP qualification.

The workshops will provide useful material to delegates in developing their portfolio of education, training and experience and so support their attainment of qualified expert status and provide valuable points for their Continuing Professional Development for renewal of Certificates. There is also an Optional Assessment. *Anyone taking the assessment may claim double the CPD points under the SRP Scheme (but not the RPA2000 scheme).*

Places have sold out in previous years so book yours now to avoid disappointment, take advantage of the early bird discount and secure your place on this internationally renowned Course.

### Day 1 - Monday 16 July 2012

10.00 Registration

10.30 **Chairman's welcome**

**Brief introduction to Atomic and Nuclear Physics**  
**Colin Partington MBE, RPA 2000 Assessing Body**

10.45 **Dose quantities for internal and external exposure**

- 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

**Dr Peter Ambrosi**, Head of Radiation Protection Dosimetry Department, **Physikalisch-Technische Bundesanstalt**, Germany

12.00 Lunch

13.00 **Biological effects of ionising radiation**

- 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

**Dr Mark Hill**, Head of Radiation Biophysics, Gray Institute for Radiation Oncology & Biology, **University of Oxford**

14.00 **New developments in radiobiology and radiation genetics**

- Assessing current developments in biology and genetics
- Defining what is epigenetics?
- Understanding the radiation induced genomic instability and the bystander effect: phenomenology and origin
- Potential implications of "new effects" for radiation standards
- Genetics or epigenetics as the basis for radiation (and other environmentally) induced disease?

**Dr Keith Baverstock**, Adjunct Professor, **University of Eastern Finland**

15.15 Discussion session

15.30 Tea

15.45 Optional walking tour of Cambridge

17.45 Close of day one

### Day 2 - Tuesday 17 July 2012

09.00 **The System of Radiological Protection**

- ICRP and the System of Radiological Protection
- Why is the System important?
- Aims, principles, exposure types and situations, and other key elements
- Evolution of the System

**Christopher Clement CHP**, Scientific Secretary, **International Commission on Radiological Protection (ICRP)**

10.00 **Radiological protection in the European Union**

- Understanding radiological protection in the European Union
- Identifying new developments in directives, regulations and recommendations
- Focusing on emergency aspects

10.40 Discussion session

10.50 Morning tea

11.10 **Non-ionising radiation – electromagnetic fields and optical radiation**

- The electromagnetic spectrum – explaining the guidelines
- Explaining the European Agents Directive
- Analysing the sources of non-ionising radiation and their impact in the workplace

**J Arwel Barrett TD**, HM Principal Specialist Inspector, Corporate Specialist Division Radiation Team, **UK Health and Safety Executive**

12.10 **Regulating in the non nuclear sector**

- The Regulatory Authority
- Authorisation, Inspection and Enforcement
- Practical aspects of regulation in the non nuclear sector

12.50 Discussion session

13.00 Lunch

14.00 **Safe transport of radioactive materials**

- Package types and testing
- Radiological Controls and Exposures
- Marking, Labelling and Placarding
- Transport Emergency Arrangements
- INES rating

**Phil McNamara**, Dangerous Goods Safety Advisor (DGSA), **EDF Energy**

15.00 **Radiation protection in the nuclear fuel cycle**

- Explaining the role of the RPA
- Applying the IRR99 to a nuclear processing plant
- Identifying internal and external radiation exposures
- Understanding the practical applications of ALARA
- Learning from radiation accidents

**Jim Bishop**, Head of Radiation Protection, **Sellafield Ltd**

16.00 Discussion session and afternoon tea

16.15 **Understanding instrument selection**

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

**Pete Burgess**, Principal Consultant, Radiation Metrology, **Nuvia Ltd**



17.10 **WORKSHOP**

**The practical application of instrument selection**

**Pete Burgess**, Principal Consultant, Radiation Metrology, **Nuvia Ltd**

18.00 Close of day two

## Day 3 - Wednesday 18 July 2012

- 09.00 **Radiological protection in the design of the EPR (European Pressurised Reactor)**
- Analysing the design approach
  - Learning from past experiences
  - Estimating the levels of radiation
  - Protecting site personnel
- Stephane Moreau**, Radiation Protection & Transverse Studies Manager, Nuclear Engineering Department, **EDF Energy**, France
- 09.50 **Operational health physics at a pressurised water reactor**
- 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
- Guy Renn**, Head of Radiological Protection, Technical & Safety Department, Sizewell B Power Station, **EDF Energy**
- 10.50 Discussion session
- 11.10 Morning tea
- 11.30 **Understanding the Naval PWR and health physics support**
- The Naval PWR & PWR design
  - Hazards associated with Naval PWR
  - Submarine design and limitations
  - Safety Management Organisation
- Lieutenant Commander David Edwards**, Radiation Protection Policy Officer Navy Command Headquarters, **Royal Navy**
- 12.15 Discussion session
- 12.30 Lunch
- 13.30 **Security of radioactive sources**
- HASS and the risks from radioactive sources
  - The UK approach to improving security.
  - Further developments in source security
- Jim Cochrane**, Principal Policy Officer, **Scottish Environment Protection Agency**
- 14.10 **Issues for environmental regulation**
- Environmental Permitting Regulations 2011
  - Simplifying the regulatory process
  - Assessing the developments in UK policy
  - Analysing the impact of international developments on environmental regulation
  - The Qualified Expert and Radioactive Waste Advisor
- Jim Cochrane**, Principal Policy Officer, **Scottish Environment Protection Agency**
- 14.50 Discussion session
- 15.00 Afternoon tea
- 15.20 **Exploring environmental radiation**
- Assessing exposure to the public
  - Explaining environmental transfers and exposure pathways
  - Monitoring natural and man-made sources
  - Managing planned and accidental discharges
- Laura Vivian**, Analytical Sciences and Technical Authority, **AWE**
- 16.00 **Optimisation in environmental situations**
- Assessing radioactive contamination of the environment and their impact
  - Developing potential management options
  - Analysing decision aiding techniques
  - Focusing on examples in practice
- Dr Lorimer Fellingham**, Manager, Site Remediation Service, **Nuvia Ltd**
- 16.50 Discussion session
- 17.00 Close of day three
- 17.30 **Punting on the river**
- 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.

## Day 4 - Thursday 19 July 2012

- 09.00 **Natural radioactivity and NORM**
- Analysing the practical measures for dealing with NORM
  - Exploring waste disposal options
  - New developments in regulatory frameworks
- Professor David Read**, Professor of Radiochemistry, **University of Loughborough**

- 09.50 Discussion session
- 10.10 **Radiation protection in medicine**
- Applying the ALARA principle
  - Using ionising radiation in medicine
  - Exploring the levels of exposure of patients, staff and the public
  - Managing radioactive waste in medicine
  - Protecting the public from radiation exposure
- Professor Peter Marsden**, Department of Medical Physics and Bioengineering, **UCL Hospitals NHS Foundation Trust**
- 11.00 Morning tea
- 11.15 **Radiation protection in medicine (cont)**
- Professor Peter Marsden**, Department of Medical Physics and Bioengineering, **UCL Hospitals NHS Foundation Trust**
- 12.00 Discussion session
- 12.15 Lunch
- 13.15 **Emergencies and contingency planning**
- Reviewing major accidents
  - Legislation and expectations
  - Protecting the public – countermeasures
  - Planning for emergencies
  - Recovery & reassurance monitoring
- Keith Pearce**, Strategy Lead for Emergency Planning, **Magnox Limited**
- 14.15 Discussion session and tea
- 14.30 **Evaluating risk and risk assessment**
- Understanding the concepts of hazard and risk
  - Identifying hazard and risk
  - Evaluating the control of hazard and risk
  - Explaining the safety justification
- Jim Gilmore**, Managing Principal Consultant, **AREVA RMC**

- 15.40 **WORKSHOP:**  
**Risk assessment**  
**Jim Gilmore**, Managing Principal Consultant, **AREVA RMC**

- 16.50 Close of day four
- 17.00 **Optional Assessment**
- Under the SRP CPD Scheme, the course has a maximum of 26 points but delegates can double this figure to 52 by taking this optional assessment.  
*(Note this doubling does not apply to the RPA 2000 Renewal scheme)*
- 18.00 End of Assessment
- 19.00 Black Tie Gala Dinner

## Day 5 - Friday 20 July 2012

- 09.30 **The international nuclear events scale**
- Explaining the history
  - Assessing new developments
  - Demonstrating examples of international nuclear events scale
- Colin Partington MBE**, **RPA 2000 Assessing Body**
- 09.50 Discussion session
- 10.00 **Communications, culture and culling**
- The importance of Safety Culture
  - Achieving Safety in a workforce
  - Risk Communication in normal and accident scenarios
  - Radioactive pigeons
- Colin Partington MBE**, **RPA 2000 Assessing Body**
- 10.55 Morning tea
- 11.15 **The qualified expert in the UK – RPA & RWA certification**
- Outlining the RPA2000
  - Renewing certification – the pitfalls of a portfolio
  - Approaching RPA training in EU member states
  - Explaining the syllabus for qualified experts in the EU
- Professor Peter Marsden**, Department of Medical Physics and Bioengineering, **UCL Hospitals NHS Foundation Trust**
- 12.10 Discussion session
- 12.20 Chairman's closing remarks
- 12.30 Close of course

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Christ's College, Cambridge

## VIP CODE:

Event Code  
**FKA2269**

**Double your  
CPD points  
by taking the  
optional  
assessment**

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### VENUE DETAILS

Christ's College  
St Andrew's Street  
Cambridge, CB2 3BU, UK  
Tel: +44 (0)1223 334900  
http://www.christs.cam.ac.uk/

### ACCOMMODATION DETAILS

Fee includes dinner, bed and breakfast for four nights (Monday night to Thursday night, with check out on Friday), lunch, and refreshments as listed in the brochure; course documentation and the Optional walking tour of Cambridge. NB: Accommodation is in single study bedrooms normally occupied by undergraduates in term time. All bedrooms have washbasins and tea and coffee making facilities, a shower or bath and a toilet. If you prefer hotel accommodation you will be responsible for organising this, with no reduction in the course fee. Bar facilities are available at the delegates own expense.

### ELECTRONIC DOCUMENTATION AVAILABLE

I am unable to attend the **Radiological Protection Summer School** but please reserve me \_\_\_ set(s) of the Course papers at £599. For further information please call: +44 (0) 20 7017 5522, fax: +44 (0) 20 7017 4745 or email: papers.info@informa.com

### STEP 1: SELECT YOUR PACKAGE (please tick option)

	DATES	REGISTER BY 30th March 2012	SAVE	REGISTER BY 1st June 2012	SAVE	REGISTER AFTER 1st June 2012
<b>5 Day Package:</b> Radiological Protection Summer School	<b>16-20 July 2012</b>	<b>£2299</b> (plus VAT @ 20% = £2758.80)	<b>£200</b>	<b>£2399</b> (plus VAT @ 20% = £2878.80)	<b>£100</b>	<b>£2499</b> (plus VAT @ 20% = £2998.80)

**£200 discount available for 3rd and subsequent delegates from the same company**

Please note the course fee does not include travel or drinks at college bar. Price per delegate is inclusive of accommodation (provided by Christ's College @ £47 + VAT per night), documentation, lunches, daytime refreshments, breakfasts and an optional walking tour of Cambridge. Delegate to receive final invoice with breakdown of accommodation provided by college and all other components as provided by Informa UK Ltd.

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