NPL

Radiation biology

course

**Date**: 4th – 7th May 2020

**Venue**: National Physical Laboratory

Hampton Road, Teddington, TW11 0LW, UK

# **Programme**

|  | **Day 1 – Monday 4th May 2020** |  |
| --- | --- | --- |
| 9:30 – 10:30 | Registration and coffee |  |
| 10:30 – 11:00 | Introduction to the course | Prof. G. Schettino  Prof. A. Nahum |
| 11:00 – 12:00 | Uncertainties in radiation biology and radiotherapy | Prof. G. Schettino  Prof. A. Nisbet |
| 12:00 – 14:00 | Lunch break & Tour of facilities |  |
| 14:00 – 15:00 | Dose and dosimetry | Dr H. Palmans  Dr A. Subiel |
| 15:00 – 16:00 | Basic cellular radiobiology | Prof. K.M. Prise |
| 16:00 – 16:30 | Coffee break |  |
| 16:30 – 17:30 | Radiosensitizers and radioprotectors | Prof. A. Chalmers |

|  | **Day 2 – Tuesday 5th May 2020** |  |
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| 9:00 – 9:45 | Ionizing-radiation-induced DNA damage and repair | Prof. K.M. Prise |
| 9:45 – 10:30 | Fractionation | Dr C. Deehan |
| 10:30 – 11:00 | Coffee break |  |
| 11:00 – 11:45 | Radiobiological aspects of proton and other charged particle therapy | Prof. N. Burnet |
| 11:45 – 12:30 | Track structure and microdosimetry | Dr F. Romano |
| 12:30 – 13:00 | Introduction to macroscopic radiobiological models | Prof. A. Nahum |
| 13:00 – 14:00 | Lunch break |  |
| 14:00 – 17:30 | Practical aspects of radiation biology experimentation:  HVL measurements, QA & Dose measurements in reference conditions – kV X-rays, Dose to samples, NPL small animal dosimetry service, radiobiological techniques | Dr A. Subiel  Dr I. Silvestre-Patallo  Dr M. Barry  Prof. G. Schettino |

|  | **Day 3 – Wednesday 6th May 2020** |  |
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| 9:00 – 10:00 | Tumour control probability (TCP) models | Prof. A. Nahum |
| 10:00 – 11:00 | Predicting the incidence of normal tissue complication: mathematical models for NTCP | Dr C. Fiorino |
| 11:00 – 11:30 | Coffee break |  |
| 11:30 – 12:30 | Use of EUD, TCP, NTCP for individualizing and optimizing treatment plans | Dr M. Schwarz |
| 12:30 – 13:30 | Lunch break |  |
| 13:30 – 14:00 | Introduction to Biosuite | Prof. A. Nahum |
| 14:00 – 17:00 | Biosuite exercises | Prof. A. Nahum  Dr. M. Barry  Dr. M. Hussein |
| 17:00 – 18:00 | Raystation demo: radiobiological features | Dr M. Hussein  Raysearch |

|  | **Day 4 – Thursday 7th May 2020** |  |
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| 9:00 – 9:45 | Lung tumours | Dr. J. Fenwick |
| 9:45 – 10:30 | Breast & prostate tumours | Dr. N. Somaiah |
| 10:30 – 11:15 | Induction of secondary cancers by radiation | TBA |
| 11:15 – 11:45 | Coffee break |  |
| 11:45 – 12:30 | Brachytherapy radiobiology | Prof. R. Dale |
| 12:30 – 14:00 | Lunch break |  |
| 14:00 – 14:45 | Functional imaging in radiotherapy | Dr. P. Julyan |
| 14:45 – 15:30 | The -omics revolution and radiotherapy | Dr Tiziana Rancati |
| 15:30 – 16:00 | Certificates & Departure |  |