

**PLEASE COMPLETE IN BLOCK CAPITALS**

Surname: ..... Forename: .....  
 Organisation: .....  
 Address: .....  
 ..... Postcode: ..... (if UK)  
 Tel No: ..... Email: .....

*Please confirm you are happy for your details to be passed onto the course(s) lecturers and other delegates attending the Physics of Medical Imaging Course(s) in way of an attendee list.* Yes / No

Background experience: .....

How did you hear about this course? ICR website  Recommendation  Other

Please specify.....

I would like to enrol for the following Course(s) (Please tick)

PRICES	Course 1	Course 2	Course 3	Course 4	Course 5
Standard price	£500	£500	£170	£500	£665
University & Hospital Staff & all Trainees	£395	£395	£140	£395	£525
Full time Students *	£210	£210	£115	£210	£280
Other	Please contact the Course Secretary if you do not fit into the categories above.				
Course 3 available at £115 if booked with any other course. One or two day registration on Courses 4 & 5 is accepted and will be charged pro rata.					

Total Cost: £.....

**Full time Students** - please forward a letter on headed notepaper signed by your tutor with your application confirming that you are a full time student.

**PAYMENT**

**Invoice** – please raise a Purchase Order to – The Institute of Cancer Research, 123 Old Brompton Rd, London, SW7 3RP. PO Number:.....

OR

**Cheque** - I enclose a cheque for the full amount of £ ..... payable to "The Institute of Cancer Research - PHRJOH"

OR

**Credit/Debit Card** – please contact the course administrator if you wish to pay by this method.

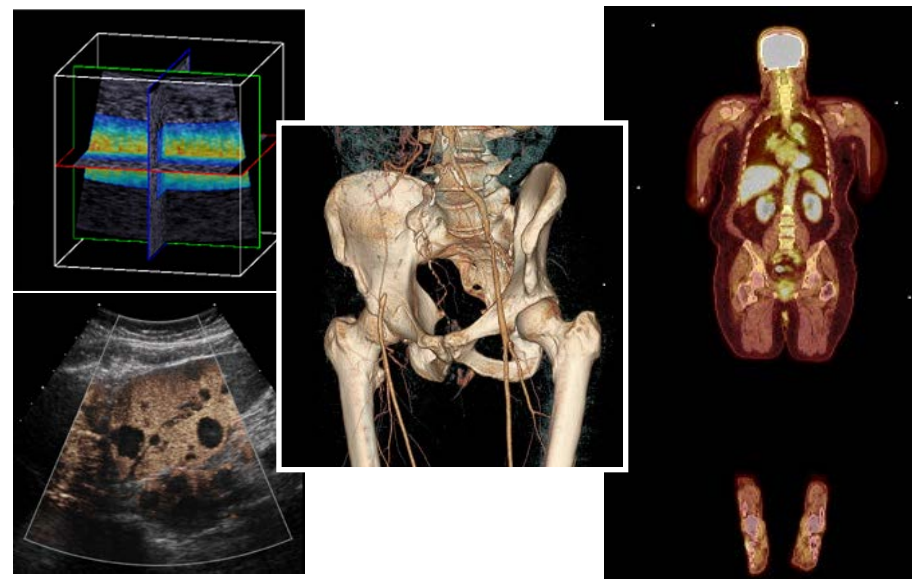
Do you wish to receive accommodation details? Yes / No  
 Do you have any dietary requirements? If 'Yes' please specify:.....  
 Do you require any special assistance? If 'Yes' please specify:.....

Please fax/send or email this completed form and forward your payment to the course administrator:

**Louise Sear, Physics Department**  
**The Royal Marsden NHS Foundation Trust**  
 Downs Road, Sutton, Surrey. SM2 5PT,  
 UK Tel. +44 (0)20 8661 3075 Fax +44 (0)20 8643 3812  
 e-mail: [Louise.Sear@icr.ac.uk](mailto:Louise.Sear@icr.ac.uk)

# THE PHYSICS OF MEDICAL IMAGING

- Course 1: Mon 29 Oct – Wed 31 Oct 2018 **Magnetic Resonance Imaging and Spectroscopy**
- Course 2: Wed 21 – Fri 23 Nov 2018 **Ultrasound Imaging**
- Course 3: Tue 12 Feb 2019 **Image Theory, Perception and Processing**
- Course 4: Wed 13 – Fri 15 Feb 2019 **Diagnostic Radiology and CT**
- Course 5: Tue 12 – Fri 15 Mar 2019 **Nuclear Medicine**



The Joint Department of Physics  
 The Institute of Cancer Research and  
 The Royal Marsden NHS Foundation Trust

## PROGRAMME DESCRIPTION

The programme provides the necessary physics background that underpins day-to-day medical imaging physics activities. It is aimed primarily at new entrants to the profession, but should be of benefit to post-graduate students, post-doctoral research workers, physicist-managers, representatives of allied commercial organisations and anyone wishing to deepen or re-establish their understanding of the physics of medical imaging.

The faculty is composed mainly of physicists, many of whom are internationally renowned for their expertise. A selection of key talks delivered by clinicians and other scientists provides the necessary broader scientific and clinical perspective. Overviews of specialised or research related topics, such as MR Spectroscopy are given. There are many opportunities for informal discussions and there will be visits to the Department of Nuclear Medicine, Ultrasound, X-ray and Computed Tomography and the MR Units of The Royal Marsden NHS Foundation Trust and / or the research labs of the Institute of Cancer Research.

**The programme consists of five separate courses. Each course is repeated annually. Registration on this form will be accepted for any combination of courses 1, 2, 3, 4 and 5. Cost (see back page for details) includes lunches and light refreshments and (with courses 2-5 only) a copy of Webb's Physics of Medical Imaging (2<sup>nd</sup> Edition, published 2012).**

## PROVISIONAL SYLLABUS

### COURSE 1 – Magnetic Resonance Imaging and Spectroscopy (3 days)

The Magnetic Resonance Imaging & Spectroscopy module is offered as a stand alone training course. Approved for CPD by IPEM. Further details are available on the website:

[http://www.icr.ac.uk/mri\\_spectroscopy\\_course](http://www.icr.ac.uk/mri_spectroscopy_course)

Course Organiser: Dr S Doran, Tel: 020 8661 3718 email: [Simon.Doran@icr.ac.uk](mailto:Simon.Doran@icr.ac.uk)

Course Administrator: Mrs M Porter, Tel: 020 8661 3701, e-mail: [Melisa.Porter@icr.ac.uk](mailto:Melisa.Porter@icr.ac.uk)

### COURSE 2 – Ultrasound Imaging (3 days)

Fundamentals of ultrasound and its interaction with tissues; Acoustic fields, transducers and beam formation; Physical and engineering principles of ultrasound imaging, Doppler, microbubble contrast and elastography; Bioeffects and safety principles, Assurance of quality and acoustic safety of ultrasound diagnostic devices, Fields of medical application and research.

This course has been accredited by EBAMP as CPD event for Medical Physicists at EQF level 7 and awarded 28 CPD credit points.

Course Organiser: Mr M O'Leary, Tel: 020 8722 4852 e-mail: [Mark.Oleary@rmh.nhs.uk](mailto:Mark.Oleary@rmh.nhs.uk)

Course Administrator: Mrs LA Sear, Tel: 020 8661 3075 email: [Louise.Sear@icr.ac.uk](mailto:Louise.Sear@icr.ac.uk)

### COURSE 3 – Image Theory, Perception and Processing (1 day)

Formal mathematics of medical imaging; Perception and interpretation of medical images; Image processing and display techniques.

Course Organiser: Dr E Castellano, Tel: 020 7808 2514, e-mail: [elly.castellano@rmh.nhs.uk](mailto:elly.castellano@rmh.nhs.uk)

Course Administrator: Mrs LA Sear, Tel: 020 8661 3075 email: [Louise.Sear@icr.ac.uk](mailto:Louise.Sear@icr.ac.uk)

### COURSE 4 – Diagnostic Radiology and CT (3 days)

Review of the x-ray and CT imaging chains; Digital Image receptors; Multislice CT design and performance; PACS; Quality control; System optimisation in clinical practice; Advances in x-ray and CT imaging.

Course Organiser: Dr E Castellano, Tel: 020 7808 2514, e-mail: [elly.castellano@rmh.nhs.uk](mailto:elly.castellano@rmh.nhs.uk)

Course Administrator: Mrs LA Sear, Tel: 020 8661 3075 email: [Louise.Sear@icr.ac.uk](mailto:Louise.Sear@icr.ac.uk)

### COURSE 5 – Nuclear Medicine (4 days)

This will consist of four one day courses that may be attended separately or in any combination.

1. Radionuclides and radiation protection
2. Physics of gamma camera and SPECT imaging
3. Physics of PET/CT
4. Internal dosimetry for molecular radiotherapy.

Topics covered include radiopharmacy, basic and advanced physics of molecular imaging and clinical applications.

Course Organiser: Dr I Murray, Tel: 020 8661 3715, e-mail: [iain.murray@icr.ac.uk](mailto:iain.murray@icr.ac.uk)

Course Administrator: Mrs LA Sear, Tel: 020 8661 3075 email: [Louise.Sear@icr.ac.uk](mailto:Louise.Sear@icr.ac.uk)

## VENUE

Courses 1, 2 & 5 are held on the Sutton campus of The Royal Marsden Hospital and Institute of Cancer Research:

[http://www.icr.ac.uk/contact\\_us/sutton/index.shtml](http://www.icr.ac.uk/contact_us/sutton/index.shtml)

Courses 3 and 4 are held at the Chelsea campus:

<http://www.royalmarsden.nhs.uk/location-visiting/pages/chelsea-london.aspx>

Details of the courses may also be viewed on the Physics Department website:

[http://www.icr.ac.uk/medical\\_imaging\\_course](http://www.icr.ac.uk/medical_imaging_course)

*Front cover pictures: Top Left: Coloured elasticity image overlayed on a 3D B mode; Bottom Left: image of liver tumours with ultrasound contrast agent overlayed on normal B mode; Centre: volume-rendered bifemoral CT angiogram; Right: coronal slice of total body <sup>18</sup>F DG PET/CT scan.*