

PAYMENT (including lunch, light refreshments, and lecture notes)
Verification letter confirming student status from supervisor required for student rate
The closing date for registration is **Friday 1 November 2019**. Applications from outside the UK are welcome.

Please complete in BLOCK CAPITALS

Surname:.....Forename:.....

Organisation:.....

Address:.....

.....Postcode:.....(if UK)

Tel:.....Email:.....

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 tick: Full (£500) NHS/Univ/IPEM/Part 2 (£395) Students (£210)

BACS for Sterling receipts only. Please complete the Ref Field NUMZLM – MRI Training Course, and give name of registrant(s)
Bank name: HSBC
Bank Address: 95 Gloucester Road, South Kensington, London SW7 4SX
Account name: The Institute of Cancer Research
Account No: 00476110
Bank Sort Code: 40-05-14
Swift Code: HBUKGB4107D
IBAN: GB44HBUK40051400476110

Invoice Please raise a Purchase Order to The Institute of Cancer Research, 123 Old Brompton Road, London, SW7 3RP
Purchase Order Number:.....

Cheque (made payable to “The Institute of Cancer Research / NUMZLM”)

Credit Card – please contact the course administrator (details below)

Please fax, post or email this completed form with payment to:
Melisa Porter, MRI Unit, Royal Marsden NHS Trust, Downs Road, Sutton, Surrey, SM2 5PT, UK
Email: melisa.porter@icr.ac.uk / **Tel:** +44 (0)20 8661 3701 / **Fax:** +44 (0)20 8661 0846

MAGNETIC RESONANCE IMAGING AND SPECTROSCOPY COURSE

11 – 13 November 2019



The **ROYAL MARSDEN**
NHS Foundation Trust



Course Venue

The Institute of Cancer Research and The Royal Marsden NHS Foundation Trust,
Downs Road, Sutton, Surrey, UK

Course Description

The course has been running at its current venue since 1998. It gives an introduction to methods and applications of biomedical Magnetic Resonance Imaging and Spectroscopy, assuming no prior knowledge of the principles of magnetic resonance.

The course is intended to be useful both for NHS physicists who deal with MR in a clinical setting, and for scientists (such as postdocs and PhD students new to the field) performing research in the field of *in vivo* NMR. It includes the opportunity to observe measurements demonstrated on one of the Siemens 1.5T MR systems, installed at the Royal Marsden NHS Trust. A provisional lecture list is given opposite.

The course assumes some familiarity with general principles of physics, but no specific knowledge of magnetic resonance.

Group tutorials are included to give students the opportunity to discuss the material in small groups, and to perform simple exercises to reinforce and extend the teaching of the formal lectures.

The course begins at 9.30am on Monday 11 November and finishes late afternoon on Wednesday 13 November. A 1½-hour group demonstration is included as part of the course on the Monday or Tuesday evening.

Although accommodation is not included in the course fee, we can supply a list of accommodation available locally. We recommend early booking as the choice in Sutton is limited.

Accreditation

The course contents have been approved for CPD by IPEM. A Course-Completion Certificate is provided for CPD purposes

Further Information

Updated information including timetable, lecture synopses and map can be found at:

http://www.icr.ac.uk/mri_spectroscopy_course

Or by contacting Melisa Porter – details overleaf

Information of other medical imaging courses based at ICR/RMH can be found at:

http://www.icr.ac.uk/medical_imaging_course

Provisional Lecture List

- Basis of NMR
- Relaxation Parameters and Spin Echoes
- Magnetic Field Gradients, Slice selection and Frequency Encoding
- 2-D FT Imaging, k-space
- Basic Imaging Sequences: Spin-echo and gradient echo
- Hardware - Magnets, Gradients and Eddy currents
- Image contrast, Resolution and Factors affecting signal-to-noise
- Hardware - RF Requirements and RF Coils
- MRI in Practice
- Image Artefacts
- Safety Considerations
- MRI for Radiotherapy Planning
- Introduction to *in vivo* MR Spectroscopy
- Single-voxel MRS
- Introduction to Spectroscopic Imaging (CSI)
- Processing MRS Data
- Advanced Pulse Sequences and Techniques
- Flow and Angiography
- Introduction to Perfusion, Diffusion and Functional MRI
- Clinical examples of MR

Each lecture is 45 minutes in duration.

Provisional List of Lecturers

Dr G Charles-Edwards	Guys and St Thomas' NHS Foundation trust London
Dr S Doran	ICR and RMH Sutton
Dr M Graves	Addenbrookes Hospital Cambridge
Dr P Murphy	GlaxoSmithKline R&D Uxbridge
Dr Katja De Paepe	ICR and RMH Sutton
Dr M Orton	ICR and RMH Sutton
Dr GS Payne	ICR and RMH Sutton
Dr M Rata	ICR and RMH Sutton
Dr M Schmidt	ICR and RMH Sutton
G Barker	King's College London
Dr J Winfield	Guys and St Thomas' NHS Foundation trust London