ICR The Institute of Cancer Research

Postdoctoral Training Fellow in quantitative MRI for MR-guided radiotherapy

Candidate Information

Date: May 2022

The Institute of Cancer Research

About our organisation

We are one of the world's most influential cancer research institutes with an outstanding record of achievement dating back more than 100 years. We are world leaders in identifying cancer genes, discovering cancer drugs and developing precision radiotherapy. Together with our hospital partner The Royal Marsden, we are rated in the top four centres for cancer research and treatment worldwide.

As well as being a world-class institute, we are a college of the University of London. We came top in the league table of university research quality compiled from the Research Excellence Framework (REF 2014).

We have charitable status and rely on support from partner organisations, charities, donors and the general public.

We have more than 1000 staff and postgraduate students across three sites – in Chelsea and Sutton.

Division of Radiotherapy and Imaging

The Division of Radiotherapy and Imaging is investigating new imaging methods to diagnose cancer, and ways in which advances in technology and molecular biology can improve radiation treatment.

Within the Magnetic Resonance Imaging in Radiotherapy team, the successful candidate will enable fast quantitative imaging for daily functional imaging on the Unity MR-Linac system. This will involve MR pulse programming within the Philips PARADISE (C++) framework and image reconstruction using the ICR's high-performance computing

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architecture. The candidate will have opportunities to collaborate with other MRI scientists, clinical researchers and medical physicists in the Joint Department of Physics at the Institute of Cancer Research and the Royal Marsden NHS Foundation Trust, in particular in relation to the Cancer Research UK programme “Adaptive Data-driven Radiation Oncology”.

Our mission is to make the discoveries that defeat cancer.

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Our values

The ICR has a highly skilled and committed workforce, with a wide variety of roles, each requiring different skills. But whether you work as a researcher, or work as part of our corporate team, your work and behaviour is underpinned by these six values. They are what bring us together as one team - as 'One ICR'.

Pursuing excellence

We aspire to excellence in everything we do, and aim to be leaders in our field.

Acting with Integrity

We promote an open and honest environment that gives credit and acknowledges mistakes, so that our actions stand up to scrutiny.

Valuing all our people

We value the contribution of all our people, help them reach their full potential, and treat everyone with kindness and respect.

Working together

We collaborate with colleagues and partners to bring together different skills, resources and perspectives.

Leading innovation

We do things differently in ways that no one else has done before, and share the expertise and learning we gain.

Making a difference

We all play our part, doing a little bit more, a little bit better, to help improve the lives of people with cancer.

Our values set out how each of us at the ICR, works together to meet our mission – to make the discoveries that defeat cancer. *They summarise our desired behaviours, attitudes and culture – how we value one another and how we take pride in the work we do, to deliver impact for people with cancer and their loved ones."*

Professor Kristian Helin
Chief Executive

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Job description

Department / division:	Joint Department of Physics Division of Imaging & Radiotherapy
Pay grade / staff group:	Postdoctoral Training Fellow
Hours / duration:	Full time (35 hours per week), Monday to Friday. Fixed term contract for 3 years
Reports to:	Team Leader Magnetic Resonance Imaging in Radiotherapy
Main purpose of the job:	To implement new quantitative MR image acquisition and reconstruction strategies for treatment adaptation on a 1.5 T MR-Linac.

Duties and responsibilities:

Main Tasks

Devise and implement new quantitative MR acquisition strategies with focus on techniques based on MR relaxometry on the Unity MR-Linac system.
Perform biophysical modelling to enable inclusion of a signal model into the image reconstruction. Characterise and minimise uncertainty in quantitative MR parameters.
Participate in the development of image reconstruction techniques within the MRI in Radiotherapy team.
Development of experimental methods / phantoms to assess and validate the newly developed techniques.
Translate and evaluate the developed functional MRI techniques in clinical studies in collaboration with clinicians of the Royal Marsden Hospital.

Other responsibilities

Mentor scientific staff, e.g. PhD students and undergraduates, in research projects related to MR imaging.
Present work at international conferences, in particular at the annual ISMRM and MR in RT meetings.
Liaise with clinical staff including oncologists, radiologists, radiographers, medical physicists and mechanical engineering staff, other teams at ICR and external partners as required.
Attend project meetings and training courses at different locations of RMH/ICR or externally.
Ensure adequate record keeping and documentation of all experiments and developed source code.

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Workforce Agreement for Postdoctoral Training Fellows

The ICR has a workforce agreement stating that Postdoctoral Training Fellows can only be employed for up to 7 years as PDTF at the ICR, providing total postdoctoral experience (including previous employment at this level elsewhere) does not exceed 10 years

General

All staff must ensure that they familiarise themselves with and adhere to any ICR policies that are relevant to their work and that all personal and sensitive personal data is treated with the utmost confidentiality and in line with the General Data Protection Regulations
Any other duties that are consistent with the nature and grade of the post that may be required.
To work in accordance with the ICR's Values.
To promote a safe, healthy and fair environment for people to work, where bullying and harassment will not be tolerated.

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Person specification

Education and Knowledge

PhD in Physics, Engineering, Informatics or a related discipline	Essential*
Sound knowledge of spin physics and relevant experimental methodology	Essential
Knowledge of at least one object oriented programming language (e.g. C++)	Essential
Knowledge of complex functional imaging data within a numerical computing environment (e.g. MATLAB)	Essential
In vivo MR image acquisition and analysis	Essential

Skills

Ability to assimilate relevant information and initiate new areas of research	Essential
Ability to coordinate, plan and execute research to a high standard	Essential
Good communication skills and the ability to foster collaborative projects	Essential
Ability to prioritise a busy workload and work effectively & semi-independently	Essential

Experience

MR Pulse programming experience	Desirable
MR image reconstruction from raw data	Desirable
Familiarity with radiotherapy treatment workflows	Desirable
Proven track record of productive research / good publication record	Essential

as a minimum requirement candidates must have submitted their thesis by the start date of their employment and awarded their PhD within the six month probationary period.

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Benefits

We offer a fantastic working environment, great opportunities for career development and the chance to make a real difference to defeat cancer. We aim to recruit and develop the best – the most outstanding scientists and clinicians, and the most talented professional and administrative staff.

The annual leave entitlement for full time employees is 28 days per annum on joining. This will increase by a further day after 2 years' and 5 years' service.

Staff membership to the Universities Superannuation Scheme (USS) is available. The USS is a defined benefit scheme and provides a highly competitive pension scheme with robust benefits. The rate of contributions is determined by USS and details of the costs and benefits of this scheme can be found on their website. If staff are transferring from the NHS, they can opt to remain members of the NHS Pension Scheme.

We offer a range of family friendly benefits such as flexible working, a parents' group, and a maternity mentoring scheme. Other great benefits include interest free loans for discounted season tickets for travel and bicycle purchases, access to the NHS discounts website, a free and confidential Employee Assistance Programme which offers a range of well-being, financial and legal advice services, two staff restaurants, and access to a gym and sporting facilities at our Sutton site.

Further information

You may contact Dr Andreas Wetscherek for further information by emailing a.wetscherek@icr.ac.uk. This job description is a reflection of the current position and is subject to review and alteration in detail and emphasis in the light of future changes or development.