Job Title: Magnetic Resonance Physicist/Computational Imaging Scientist in Neuroscience

Salary: £35,477 - £38,566 per annum (without a PhD)
£40,215 - £47,579 per annum (with a PhD)

Campus: Hammersmith (East Acton)

Job Summary

We are looking for a Magnetic Resonance Physicist/Computational Imaging Scientist with experience in MR spectroscopy analysis to join the Centre for Perinatal Neuroscience within the Department of Brain Sciences.

https://www.imperial.ac.uk/perinatal-neuroscience/

The Centre for Perinatal Neuroscience is a multidisciplinary group including clinical fellows, research nurses, and neurologists, and is led by Professor Sudhin Thayyil. We lead a national and international multi-centre collaborative platform for neuroprotection trials, with a key aim to deploy quantitative MR spectroscopy techniques as routine clinical tools. Our current research program is focused on evaluating therapeutic interventions for reducing brain injury and death related to perinatal asphyxia (neonatal encephalopathy) using surrogate MR spectroscopy biomarkers and is the world’s largest clinical research program in neonatal encephalopathy. The centre has a strong track record of nurturing and supporting early career academics including MR physicists, and our staff have been awarded several prestigious NIHR and MRC fellowships.

In this role you will lead MR spectroscopy and diffusion tensor imaging acquisition and post processing aspects of several multi-country trials recruiting newborn babies with brain injury from the UK, USA, Italy, India, Sri Lanka and Bangladesh. You should be able to support and train other MR physicists, radiologists and radiographers within the consortium on advanced MR spectroscopy acquisition and post processing methods.

The post is ideal for MR Physicists/Computational Imaging Scientist who wish to explore the clinical application of MR spectroscopy and diffusion tensor imaging for improving outcomes of babies with brain injury in the UK and around the world.

Prior experience in neonatal cerebral MR spectroscopy and programming skills are useful. You will also have a creative approach to problem-solving, meticulous attention to detail, excellent written and verbal communication skills and the ability to organise and prioritise your own work. Candidates without a PhD will be encouraged to register for a PhD program at Imperial College. In addition, you will be expected to present papers at conferences and publish in high impact journals.

Further Information

This post is full-time and fixed term for three years.

Candidates who have not yet been officially awarded their PhD will be appointed as a Research Assistant within the salary range £35,477 - £38,566 per annum.

Should you require any further details on the role please contact: Professor Sudhin Thayyil – s.thayyil@imperial.ac.uk

Please use the following link to apply:
https://www.imperial.ac.uk/jobs:description/MED01992/magnetic-resonance-physicist/
For technical issues when applying online please email recruitment@imperial.ac.uk

Closing date: 12 September 2020
Job Title: Magnetic Resonance Physicist/Computer Scientist in Neuroscience

Department/Division/Faculty: Brain Sciences

Campus location: Hammersmith

Job Family/Level: Academic and Research, Level C

Salary Range: £35,477 - £38,566 per annum (without a PhD)

£40,215 - £47,579 per annum (with a PhD)

Responsible to: Professor Sudhin Thayyil

Key Working Relationships (internal): Members of the Centre for Perinatal Neuroscience at Imperial College, other physicists and imaging scientists throughout Imperial, Radiographers, Electrical Engineering Department, Imperial College London

Key Working Relationships (external): MR Radiographers and clinicians at the recruiting sites in the UK, USA, India, Sri Lanka, and Bangladesh.

Contract type: Full time, fixed-term for 3 years in the first instance, starting October 2020.

Research Programme

Imperial College London has a long tradition of world leading research into neonatal neurology, including pioneering work into rescue hypothermic neuroprotection. The post is based within the Neuroscience theme at the Centre for Paediatrics and Child Health and at the Centre for Perinatal Neuroscience within Brain sciences lead by Professor Sudhin Thayyil.

https://www.imperial.ac.uk/perinatal-neuroscience/

https://www.imperial.ac.uk/centre-for-paediatrics-child-health/research/neuroscience/

The Centre for Perinatal Neuroscience is a multidisciplinary group including clinical fellows, research nurses, and neurologists. We lead a national and international multi-centre collaborative platform for neuroprotection trials, with a key aim to deploy quantitative MR spectroscopy techniques as routine clinical tools, and the post holder will supervise the MR radiographers at these sites. Our current research program is focused on evaluating therapeutic interventions for reducing brain injury and death related to perinatal asphyxia (neonatal encephalopathy) using surrogate MR spectroscopy biomarkers. We lead the world’s largest clinical research program in neonatal encephalopathy. The centre has a strong track recording of nurturing and supporting early career academics including MR physicists, leading to several prestigious NIHR and MRC fellowships.

Purpose of the Post

We are looking for a talented and ambitious MR Physicist/Computer Scientist passionate about clinical application of magnetic resonance spectroscopy, diffusion tensor imaging and other quantitative MR techniques for the benefit of babies brain injury in the UK and world-wide. The primary purpose of the post is to lead MR spectroscopy and diffusion tensor imaging acquisition and post processing aspects using Python or Matlab. The post holder should be able to support and train other MR physicists, radiologists and radiographers within the consortium on advanced MR spectroscopy acquisition and post processing methods. The MR sequence development and imaging work will be based at the Clinical Imaging Facility.

https://www.imperial.ac.uk/medicine/research-and-impact/facilities/translational-research-imaging/clinical-imaging-facility/

Ideally the post holder will be a HCPC registered (or eligible for registration) Clinical Scientist who will take responsibility for cross-platform sequence (Siemens, Phillips and GE) development; for MR data acquisition,
Job Description

collection and analysis across the UK as well as in India, Bangladesh, and Sri Lanka. However, computer scientist with expertise in post-programming and MR data analyses are equally welcome to apply. Much of the work can be performed virtually or by online video conferencing avoiding travel.

The post-holder will be expected to supervise the MR data acquisition, and lead analysis, conference presentation and publication in high impact journals. Clinical MR physicists without a PhD, will be encouraged to register for a PhD program at Imperial College. The post is ideal for an academic high-flyer in MR Physics/Computational science, especially those who are interested in clinical applications of the MR biomarkers. Excellent mentoring and support will be available for the same. Candidates who have recently completed PhD are also welcome to apply.

Key Responsibilities

To lead and undertake research of the highest quality in the broad area of neonatal cerebral MR spectroscopy and diffusion tensor imaging.

- MR Physics lead for Neuroscience theme and Centre for Perinatal Neuroscience (Imperial College) and recruiting sites in the UK, USA, India, Sri Lanka, and Bangladesh
- Training and support local MR physicists and radiographers in the consortium on MR spectroscopy acquisition and post-processing.
- Maintain and optimise our in-house automated cerebral MR spectroscopy post-processing methods
- Liaise and interact closely with clinicians to ensure best utilisation of MR spectroscopy in clinical research and patient benefit in the UK and world wide.
- Liaise with major MR vendors (Phillips, Siemens and GE) on optimising cross platform MR spectroscopy sequences
- MR data governance and secure storage of the MR data from multicentre studies at Imperial College London in line with data protection act (UK).
- Publish research papers in peer-reviewed journals
- Attend and present work at international conferences
- Obtain research grants from national and international funding bodies, and obtain funding from industry where appropriate
- Supervise postgraduate students and undergraduate research projects

Teaching

- Supervision of neuroscience masters students where relevant
- Contribute to teaching on the MSc in Biomedical Engineering (Medical Physics and Imaging) and to the MRes in Bio Imaging Science at Imperial College London

Research Duties

- Take responsibility for methodology development projects in the areas outlined above.
- Develop an independent research interest in an area aligned to the research areas listed.
- Interface with and support a variety of clinician-led imaging research programmes.
- Ensure MR research at the Imperial CPN is carried out to the highest possible standard.
- Design and implement novel MRI/MRS methods and effect improvements to existing techniques.
- Implement MRI/MRS pulse sequences described in the literature or acquired through external collaborations.
- Support a range of studies and technical systems with different rates of change and degrees of complexity.
- Take responsibility for the optimal acquisition and analysis of cross-platform MR data, and assist all other aspects of data analysis.
- Use programming skills to implement novel analysis platforms, as well as those described in the
Job Description

- Maintain up-to-date knowledge of state of the art MR techniques.
- Present findings to colleagues and peers.
- Assist with the publication of findings.
- Attend relevant workshops and conferences as necessary.
- Develop contacts within the College and the wider community.
- Promote the reputation of the Group, the Department and the College.
- To write reports for submission to research sponsors
- To present findings via publications to referred journals and to colleagues at conferences
- To provide guidance to staff and students

Other Duties
- Ensure, by liaising with senior team members that all the equipment in his/her work area is maintained and working correctly.
- To liaise with equipment manufacturers in maintenance of the scanners and ancillary equipment.
- Monitor and maintain a safe working environment in accordance to Health & Safety procedures.
- Demonstrate a depth and breadth of knowledge in MRI techniques.
- Provide advice to other staff and students.
- Demonstrate MRI techniques to students, visitors and other members of the department.
- Participate in core support tasks, including data management.
- To undertake appropriate administration tasks
- To be responsible for ensuring that data is accurate, up-to-date and complete.
- To undertake any necessary training and/or development

Person Specification

Candidates/post holders will be expected to demonstrate the following:

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<tr>
<th>Requirements</th>
<th>Essential (E)/ Desirable (D)</th>
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<tbody>
<tr>
<td><strong>Education</strong></td>
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<tr>
<td>- Honours degree in physics, engineering, mathematics, computer science or related discipline.</td>
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<td>- Registered with the HCPC as a Clinical Scientist</td>
<td>D</td>
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<tr>
<td>- PhD in a relevant area of MR Physics of Computational Science (or with PhD thesis submitted prior to beginning in this post)</td>
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<td><strong>Experience</strong></td>
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<tr>
<td>- In depth understanding of MRI physics</td>
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<td>- Experience in pulse programming with Philips, Siemens or GE</td>
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<td>- Experience in neonatal cerebral MR spectroscopy in all the three main MR systems: Siemens, Philips and GE</td>
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<td>- Strong programming skills in a variety of languages (C/C++/Python/MATLAB)</td>
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<td>- Knowledge of research methods and statistical procedures</td>
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<td>- Practical experience within a research environment and / or publication in relevant and refereed journals</td>
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<td>- Experience in the techniques specified in the job description</td>
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<td>- Commitment to an academic career in MR Physics</td>
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<td><strong>Skills &amp; Abilities</strong></td>
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<tr>
<td>- Ability to develop and apply new concepts</td>
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<td>- Creative approach to problem-solving</td>
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<td>- Excellent verbal communication skills and the ability to deal with a wide range of people</td>
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Job Description

• Excellent written communication skills and the ability to write clearly and succinctly for publication
• Ability to communicate well with scientists, engineers, health professionals and to work as part of a team
• Ability to direct the work of a small research team and motivate others to produce a high standard of work
• Ability to organise own work with minimal supervision
• Self-motivated, able to work independently as well as be part of a multidisciplinary team, and be intellectually flexible
• Ability to prioritise own work in response to deadlines
• An absolute commitment to safety in an MR environment
• Advanced computer skills, including word-processing, spreadsheets and the Internet

Personal Attributes
• Willingness to work as part of a team and to be open-minded and cooperative
• Flexible attitude towards work
• Discipline and regard for confidentiality and security at all times
• Willingness to undertake any necessary training for the role
• Willingness to travel both within the United Kingdom and abroad to conduct research and attend conferences
• A meticulous approach and attention to detail
• An open, flexible and positive approach to working in a constantly changing environment
• The post holder should be prepared to work unsociable hours as work demands from time to time

Please note that job descriptions cannot be exhaustive and the post-holder may be required to undertake other duties, which are broadly in line with the above key responsibilities.

Imperial College is committed to equality of opportunity and to eliminating discrimination. All employees are expected to follow the 7 Imperial Expectations detailed below:

1) Champion a positive approach to change and opportunity
2) Communicate regularly and effectively within and across teams
3) Consider the thoughts and expectations of others
4) Deliver positive outcomes
5) Encourage inclusive participation and eliminate discrimination
6) Support and develop staff to optimise talent
7) Work in a planned and managed way

Employees are also required to comply with all College policies and regulations paying special attention to:
- Confidentiality
- Conflict of Interest
- Data Protection
- Equal Opportunities
- Financial Regulations
- Health and Safety
- Information Technology
- Smoking
- Private Engagements and Register of Interests

They must also undertake specific training and assume responsibility for safety relevant to specific roles, as set out on the College Website Health and Safety Structure and Responsibilities page.

[For inclusion on all Job Descriptions]

The College is a proud signatory to the San-Francisco Declaration on Research Assessment (DORA), which means that in hiring and promotion decisions, we evaluate applicants on the quality of their work, not the
journal impact factor where it is published. For more information, see https://www.imperial.ac.uk/research-and-innovation/about-imperial-research/research-evaluation/

The College believes that the use of animals in research is vital to improve human and animal health and welfare. Animals may only be used in research programmes where their use is shown to be necessary for developing new treatments and making medical advances. Imperial is committed to ensuring that, in cases where this research is deemed essential, all animals in the College’s care are treated with full respect, and that all staff involved with this work show due consideration at every level. http://www.imperial.ac.uk/research-and-innovation/about-imperial-research/research-integrity/animal-research/

Committed to equality and valuing diversity, we are an Athena SWAN Silver Award winner, a Stonewall Diversity Champion, a Disability Confident Employer and work in partnership with GIRES to promote respect for trans people.