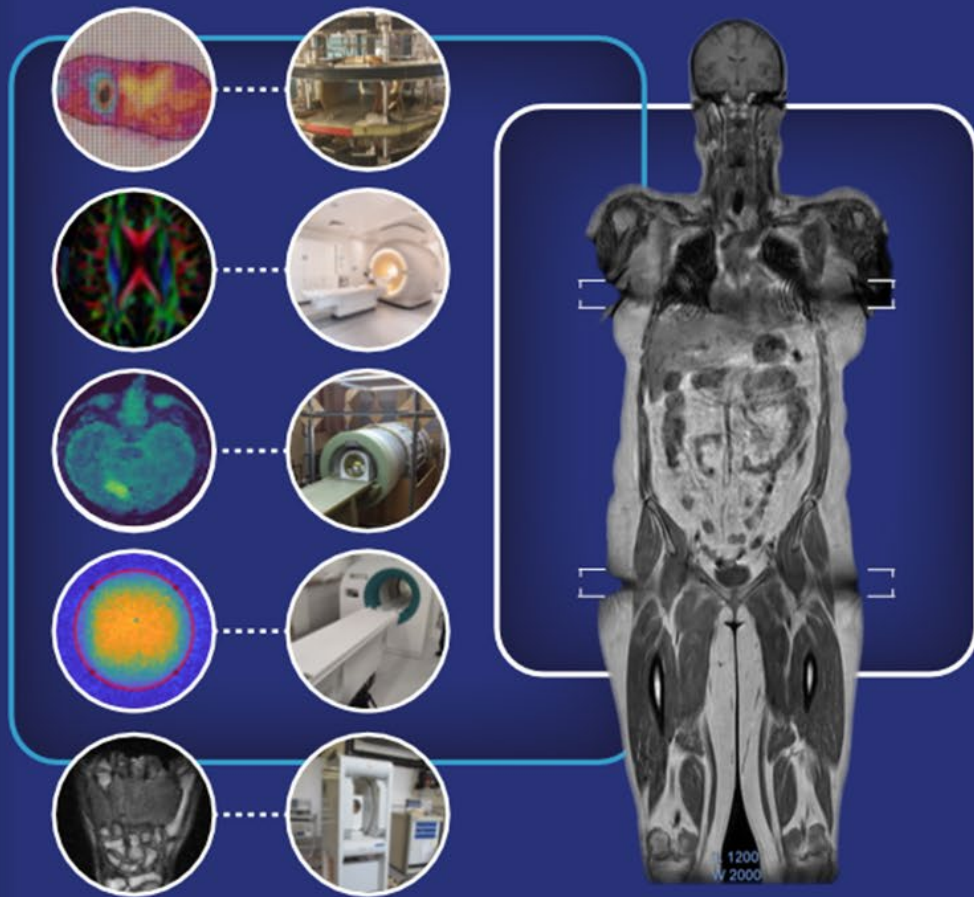


Aberdeen Biomedical Imaging Centre



Our vision is to create new imaging techniques to better understand health and disease and to inspire the next generation of imaging scientists.

“Where great minds lead the biomedical imaging future”

Going beyond boundaries since 1495

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Overview

The Aberdeen Biomedical Imaging Centre supports communication and synergy across the many scientists and clinicians working in imaging research at the University of Aberdeen. This multidisciplinary group includes radiologists, medical physicists, computer scientists, biologists, bioengineers, chemists, radiographers and administrative staff.

This year has been a busy year, with imaging staff involved in hosting two scientific meetings in July and September, as well as two ongoing major building projects; 1. to build a clinical FCI scanner in the Lilian Sutton Building and 2. a refurbishment programme of the Biomedical Physics Building to house the low-field MRI equipment shipped from Basel at the end of 2022 and bring office accommodation up to a standard suitable for 21st Century use.

As always there have been changes in staff and growth with the formal recognition of ABIC as a centre by senior management. In March 2023, Senior Lecturers Dr Najat Salameh and Dr Mathieu Sarracanie, along with Research Fellow Reina Ayde and PhD Student Gabriel Zihlmann made the move from Basel to Aberdeen bringing their Centre for Adaptable MRI Technology with them. In June, Michelle Mauchline started a period of maternity leave, with Mrs Sian Lindsey taking up a one-year post in August 2023, to ensure radiography cover for 3T and FCI scanning.

 35 researchers, ECRs, technicians and administration	 14 Research teams	 38 Papers published in 2023	 18 Live grants in 2023 totalling over £1.9M
Research			

 13 PhD students in 2023	 72 Masters students in 2023		
Teaching			

Prepared by Mrs Teresa Morris
 Imaging Facilities Co-ordinator
 Aberdeen Biomedical Imaging Centre
 31 March 2024

Approved by Dr Gordon D Waiter
 Director of ABIC
 Aberdeen Biomedical Imaging Centre
 08 April 2024

27th Medical Image Understanding and Analysis (MIUA) Conference

July saw the first of two major scientific meetings, co-organised by ABIC Staff to be held in Aberdeen. The **27th Medical Image Understanding and Analysis Conference** from 19th to 21st July was held at the Suttie Centre for Teaching and Learning at Foresterhill. **Gordon Waiter** and **Teresa Morris** worked with colleagues from CPD services, Computing Sciences and Health Data Sciences to deliver this UK-based international conference for the communication of image processing and analysis research and its application to medical imaging and biomedicine which attracted 120 delegates across the 3 days.



Civic Welcome Reception for MIUA 2023 at the Aberdeen Town House:
(from L-R) Councillor Ian Yuill, Gordon Waiter, Stephen Smith - Town Sergeant. Photo courtesy of @mua2023.

The conference brought together scientists and students from the medical imaging and computer science fields from across the UK and Europe, and the Middle East and North America. The three-day conference included invited, oral and poster presentations on all aspects of image analysis and understanding with Aberdeen staff and students well represented. All talks and posters from Aberdeen staff and students are listed in the presentation section.

An array of renowned speakers agreed to deliver invited lectures to the delegates at the conference and we were delighted that **Professor Lesley Anderson** (Chair in Health Data Science, University of Aberdeen) was able to deliver a Keynote lecture “*Artificial Intelligence use in Digital Diagnostics – findings from the iCAIRD (Industrial Centre for Artificial Intelligence Research in Digital Diagnostics) Consortium*” on the iCAIRD project.

Dr Clarisse de Vries was the winner of the best oral poster presentation with “*Variation in Mammography Imaging Equipment Impacts Artificial Intelligence Performance in Breast Cancer Screening*” at this conference.

British and Irish Chapter of the International Society for Magnetic Resonance in Medicine

From 13th to 15th September, the **British and Irish Chapter of the International Society for Magnetic Resonance in Medicine (BIC-ISMRM)** held their annual chapter meeting entitled “*New Horizons in MRI*” at Kings College Conference Centre, Old Aberdeen led by **Prof David Lurie** and the local organising committee as pictured below.



Local Organising Committee: (from L-R) **Gordon Waiter, Mathieu Sarracanie, Teresa Morris, Lionel Broche, Najat Salameh, David Lurie** with Po-Wah So, BIC President. Photo courtesy of Hana Lahrech.

The conference brought together scientists, doctors and students concerned with the development and use of MRI from a broad range of disciplinary and geographical regions, primarily from the UK and Ireland, but also from Europe. The three days started with a workshop on low-field imaging, followed by tours of the Foresterhill campus, visiting the Mark-I scanner in the Suttie Arts Space as well as the research scanners in Medical Physics and Lilian Sutton Buildings. In the evening, a Café Scientifique event took place at the Aberdeen Art Gallery – “*MRI Research: the past, present and future*”. The following two days included invited, oral and poster presentations on all aspects of MRI with Aberdeen PhD student, **Liene Balode**, winning the best oral and best poster presentations for “*T1 ρ imaging for detecting takotsubo cardiomyopathy*” and “*Optimisation of T1 ρ imaging for detecting cardiac fibrosis*” respectively, with **Gabriel Zihlmann** picking up third prize in the oral talks category. All talks and posters from Aberdeen staff and students are listed in the presentation section on page 15.

An array of renowned speakers agreed to deliver invited lectures to over 130 delegates at the conference and we were delighted that Professor Fiona Gilbert (University of Cambridge) delivered the flagship Bill Moore Lecture “*Standing on the shoulders of Giants – clinical application of the developments in MR*”.

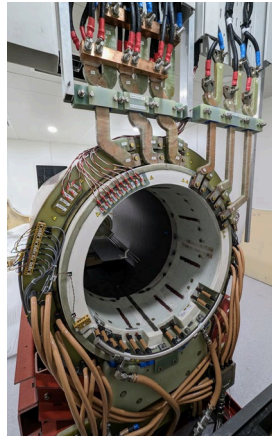
Infrastructure developments:

Field Cycling Imaging in ARI

The FCI Group has been busy with the continued installation of the clinical FCI system, with delivery of the magnet in June (see Picture 1). As this group (Broche L; Davies G; Ross PJ) are assembling all the components, this takes much longer than a manufacturers installation (see Pictures 2 to 4).



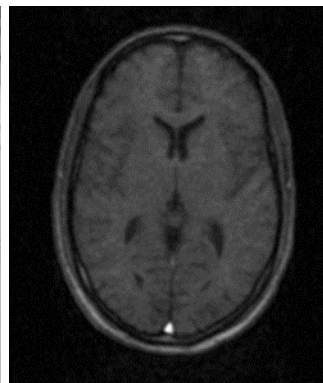
Magnet arrival



Assembly



Covers going on...

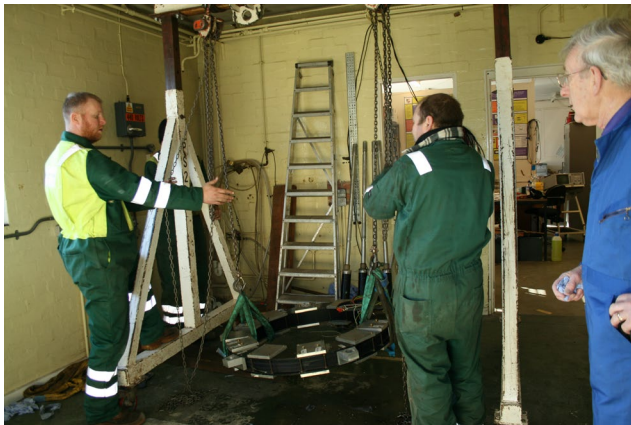


The Finished Scanner and 1st brain image at 0.2T

The team are pleased with the images being produced (Picture 5), however due to some technical difficulties, the system is not yet at its optimum status as filters and a permanent power supply have still to be installed. This is expected to be completed by late Summer/Autumn 2024.

BMP Refurbishment

The University of Aberdeen has invested ~£2M to refurbish the Biomedical Physics (BMP) building that housed Mark 1 in the early 1980s. The renovation of the East Wing started in March 2023 and should be finished by summer 2024 and will house 4 fixed, low-field MRI scanners that newly appointed Senior Lecturers, Dr Salameh and Dr Sarracanie brought to Aberdeen after they relocated their lab and team from Basel, Switzerland, in April 2023. Dr Sarracanie and Dr Salameh have been developing methods and instruments for accessible, low-field MRI for the last 13 years, and will continue developing their vision in the home of clinical MRI, in synergy with three other PIs deeply involved in MR research at 3T and with field cycling. Once the renovation and recommissioning is complete, the new BMP will host the largest low-field MR research platform worldwide.



Removal of the Mark 1 MRI scanner from room A7 BMP to the Suttie Arts Space in 2014

A7 room following final clear-out in 2023 shown opposite.



A7 showing Magnetec whole body scanner installation & build ongoing.

Research highlights

This year continued to be a productive one for staff and students, with four PhD students graduating and going on to university or industry jobs (**Holly Spence, Nafeesa Nazlee, Robert Stormont, Michelle Sader**). One student relocated from Basel to Aberdeen to continue their PhD with two new students starting their PhD journey in July and October 2023 respectively. The PhD student complement was 9 at the end of December 2023. We wish those who graduated in 2023 our best wishes for their future endeavours.

Brain and Behavior

Open Access

REVIEW | Open Access | © | i

The cerebellum plays more than one role in the dysregulation of appetite: Review of structural evidence from typical and eating disorder populations

Michelle Sader  Gordon D. Walter, Justin H. G. Williams

First published: 13 October 2023 | <https://doi.org/10.1002/brb3.3286>

Check availability

Findings suggest that more than one area of the cerebellum is involved in control of eating behaviour and may be differentially affected in normal variation and pathological conditions. Specifically, we hypothesize an association with sensorimotor and emotional learning via Lobule VI in AN/BN, and executive function via Crus I in OB.

> [Cortex. 2024 Feb;171:204-222. doi: 10.1016/j.cortex.2023.10.003. Epub 2023 Oct 26.](https://doi.org/10.1016/j.cortex.2023.10.003)

Phonological deficits in dyslexia impede lexical processing of spoken words: Linking behavioural and MEG data

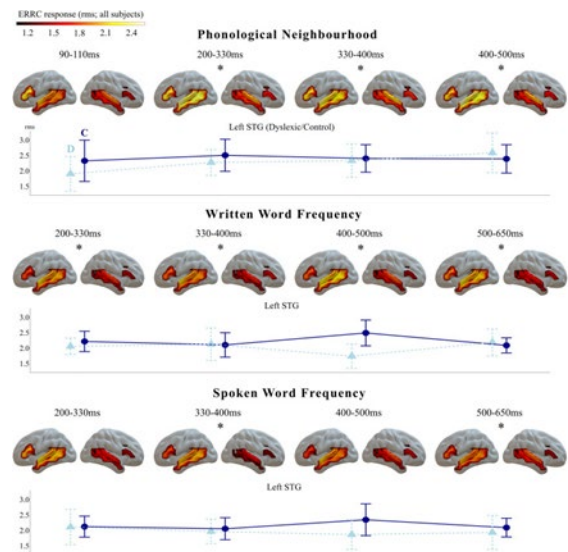
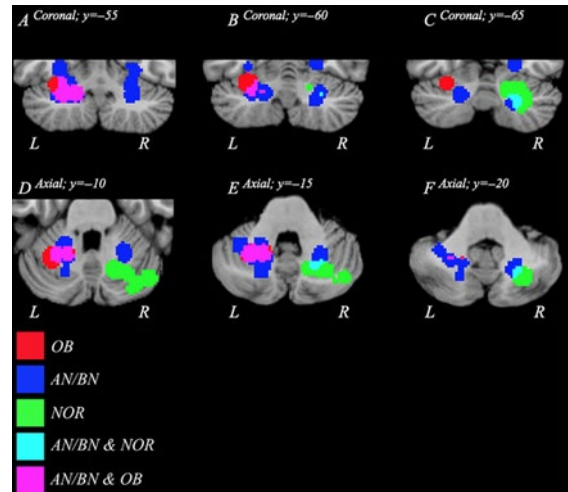
Julia Schwarz ¹, Mikel Lizarazu ², Marie Lallier ², Anastasia Klimovich-Gray ³

Affiliations + expand

PMID: 38029653 DOI: [10.1016/j.cortex.2023.10.003](https://doi.org/10.1016/j.cortex.2023.10.003)

Free article

The results provide comprehensive evidence that phonological deficits impact both sublexical and lexical stages of spoken word processing and that these deficits cannot be fully compensated through neural reorganization of lexical-distributional information at the single word level. Theoretical and practical implications for typical readers, dyslexic readers, and readers with developmental language disorder are discussed.



Impact of Different Mammography Systems on Artificial Intelligence Performance in Breast Cancer Screening

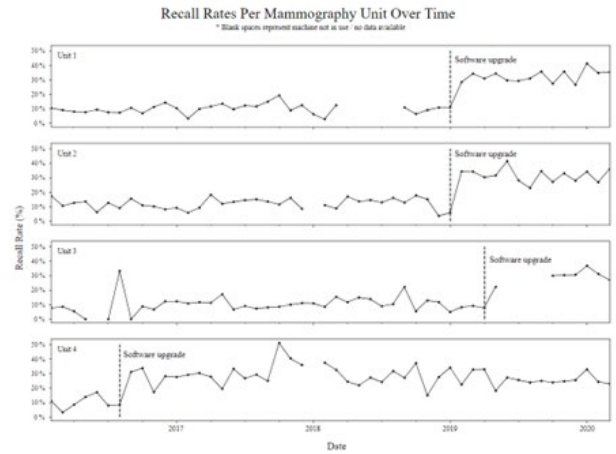
Clarisse F. de Vries, Samantha J. Colosimo, Roger T. Staff, Jaroslaw A. Dymiter, Joseph Yearsley, Deirdre Dinneen, Moragh Boyle, David J. Harrison, Lesley A. Anderson*, Gerald Lip*, on behalf of the ICAIRD Radiology Collaboration¹

* L.A.A. and G.L. are co-senior authors.

Author Affiliations

Published Online: Mar 22 2023 | <https://doi.org/10.1148/ryai.220146>

Artificial intelligence (AI) performance in breast cancer screening was affected by mammography equipment and software used, highlighting the importance of local clinical settings and technology for effective AI implementation.



Full Length | Open Access | Creative Commons License

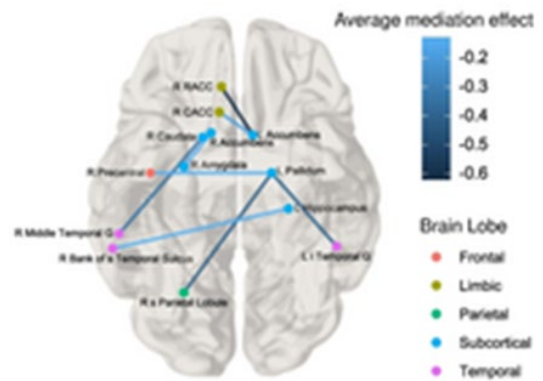
Characterizing the Neurobiological Mechanisms of Action of Exercise and Cognitive-Behavioral Interventions for Rheumatoid Arthritis Fatigue: A Magnetic Resonance Imaging Brain Study

Amir Dehsarvi, Salim Al-Wasity, Kristian Stefanov, Stewart J. Wiseman, Stuart H. Ralston, Joanna M. Wardlaw, Richard Emsley, Eva-Maria Bachmair, Jonathan Cavanagh ... See all authors

First published: 17 November 2023 | <https://doi.org/10.1002/art.42755>

The structural connection between the L-ICC and L-PCL appears to be a dominant mechanism for how both PEPs and CBAs reduce fatigue among patients with RA. This supports its potential as a substrate of fatigue neurobiology and a putative candidate for future targeting.

Functional connectivity for fatigue changes in PEP



PAPER • OPEN ACCESS

A flexible 8.5 MHz litz wire receive array for field-cycling imaging

Robert S Stormont^{3,1,2}, Gareth R Davies¹, P James Ross¹, David J Lurie¹ and Lionel M Broche¹

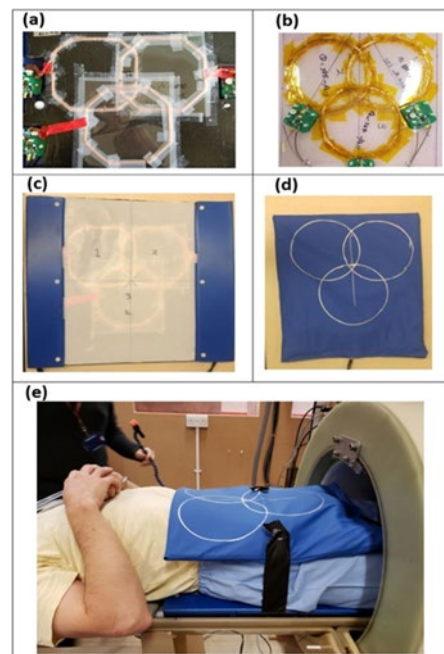
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Physics in Medicine & Biology, Volume 68, Number 5

Citation Robert S Stormont et al 2023 Phys. Med. Biol. 68 055016

DOI 10.1088/1361-6560/acb9d0

We have optimized, built, and tested low noise interfacing electronics and characterized the SNR penalties as the tuning and loading is varied, a key parameter in a geometrically flexible array designed for rapid setup. The resultant 6-channel, general-purpose array is supporting various Field-Cycling Imaging studies where body habitus and anatomies require a flexible, adaptable array coil which can be quickly positioned and utilized.



Further information can be found at <https://www.abdn.ac.uk/ims/research/abic/> and <https://www.abdn.ac.uk/ims/research/medical-imaging-technologies-2109>

List of Staff

Academic Staff

Professor Lesley Anderson	- Chair in Health Data Science
Dr Lionel Broche	- Hall Family Lecturer in Medical Physics
Dr Silvia Casini	- Senior Lecturer
Dr Edward Chadwick	- Reader
Dr Ian Fleming	- Senior Lecturer (scholarship)
Dr Edit Franko	- SCREDS Clinical Lecturer in Radiology
Dr Anastasia Klimovich-Gray	- Lecturer in Psychology
Dr James Ross	- Lecturer in CMR Physics
Dr Najat Salameh	- Senior Lecturer
Dr Anca Sandu-Giuraniuc	- Lecturer
Dr Mathieu Sarracanie	- Senior Lecturer
Dr Hugh Seton	- Lecturer (scholarship)
Dr Gordon Waiter	- Director of ABIC & Reader
Professor Andy Welch	- Professor

Academic-related Staff

Dr Reina Ayde	- Research Fellow (<i>started April 2023</i>)
Dr Celia Alvarez Campano	- Study Co-ordinator
Mr George Cameron	- Computer Physicist
Dr Gabriel Cheung	- Research Fellow
Dr Sergio Dall'Angelo	- Research Fellow
Dr Gareth Davies	- Research Fellow
Dr Clarisse DeVries	- Research Fellow
Dr Vasiliki Mallikourti	- Research Fellow
Dr Chris McNeil	- Research Fellow
Dr Nicholas Senn de Vries	- Research Fellow
Dr Holly Spence	- Research Fellow (<i>started April 2023</i>)

Technical Staff

Mr Gordon Buchan	- Research Technician (MRI)
Ms Eleanor Hutcheon	- Technician (scholarship)
Mrs Nichola Crouch	- Radiographer
Mr Arthur Ginsburg	- Radiographer
Mr Michael Hendry	- Superintendent Radiographer
Mrs Sian Lindsey	- Radiographer (<i>joined August 2023, maternity leave cover</i>)
Ms Michelle Mauchline	- Radiographer (<i>Maternity leave from May 2023</i>)
Ms Laura Reid	- Radiographer

Admin Staff

Mrs Teresa Morris	- Imaging Facilities Co-ordinator
Mrs Dawn Younie	- Administration Assistant

Honorary Staff

Mr Stuart Craib	- Honorary Research Technician (PET)
Dr Amir Dehsarvi	- Honorary Research Fellow
Dr Gerald Lip	- Honorary Clinical Senior Lecturer
Prof David Lurie	- Emeritus Professor
Dr Rosalind Mitchell-Hay	- Honorary Clinical Senior Lecturer
Prof Alison Murray	- Emeritus Professor
Miss Kirsty Murray	- Honorary Radiopharmacy technician
Dr Leela Narayanan	- Honorary Clinical Senior Lecturer
Dr Arnab Rana	- Honorary Clinical Senior Lecturer

Prof Tom Redpath	- Emeritus Professor
Prof Peter Sharp	- Emeritus Chair of Medical Physics
Dr Lutz Schweiger	- Honorary Senior Research Fellow & Senior Radiochemist
Mr Mike Shek	- Honorary Radiopharmacy technician
Prof Roger Staff	- Honorary Chair of Medical Physics
Dr Shailendra Tripathi	- Honorary Clinical Lecturer
Dr Vesna Vuksanovic	- Honorary Research Fellow

PhD students

Ms Amnah Alamri continues her PhD entitled “Fast field-cycling of rectal cancer”. Supervisors: **Dr Lionel Broche** and Dr George Ramsay.

Mr Yazan Ayoub continues in Year 2 of his PhD entitled “*Development of novel magnetic resonance imaging (MRI) methods for unravelling the role of lipid composition in patient at high risk of developing breast cancer.*” Supervisors: Dr Jiabao He (until Sept 22) then Prof Andy Welch, Prof Zosia Miedzybrodzka & Dr Sai Cheung.

Ms Liene Balode continues in Year 2 of her PhD entitled “*Detecting cardiac fibrosis using T1 rho Magnetic Resonance Imaging*” funded by an Elphinstone Scholarship. She has continued her work on identifying potential uses of T1rho MRI for cardiac applications. She presented her work on findings in a takotsubo cohort as well as work on protocol optimisation at the British Chapter of ISMRM meeting in Aberdeen where she won the prizes for best oral presentation and best poster presentation. Supervisors: **Dr James Ross** and Professor Dana Dawson.

Mr Gaurav Ramesh Datta commenced his PhD in October 2023 entitled “*VLF SPIRO 3D: Low Field Magnetic Resonance Spirometry*”. Supervisors: **Dr Mathieu Sarracanie, Dr Najat Salameh and Dr Lionel Broche.**

Dr Mohammad Hilal Wisal Khan continues his part-time PhD in cardiovascular medicine entitled “*Life-style interventions for modulating the brain phenotype of Takotsubo Cardiomyopathy (the BREAKOUT study)*”. Supervisors: Prof Dana Dawson, Dr Heather Wilson and **Dr Gordon Waiter.**

Dr Rosalind Mitchell-Hay continues with her part-time PhD studies on “*Developing Imaging Biomarkers in Rectal Cancer*”. More details on the work done can be found in Monitoring Sub-Committee Funding reports. Supervisors: Dr David McLernon and **Dr Gordon Waiter.**

Ms Nafessa Nazlee graduated in 2023. PhD entitled “*Brain cortical complexity and its association with cognitive performance and life-course factors across adulthood.*” Nafeesa was self-funded with a grant from RSAT contributing to her project expenses. She is now working for TauRx Therapeutics in Aberdeen. Supervisors: **Dr Anca Sandu-Giuraniuc and Dr Gordon Waiter.**

Ms Mahima Merin Philip is in the final stages of her PhD entitled “*Mathematical and statistical evaluation of Positron Emission Tomography (PET) data for the management of cancer*”. The project will identify, evaluate and propose novel methodological options, explore the complex relationship between the multiple sources of data, identify feature-based representations of these associations and evaluate the predictive performance of the integrated statistical model in real datasets and is expected to submit her thesis in Q1 of 2024. Supervisors: Dr Mintu Nath & **Prof Andy Welch.**

Miss Madeleine Rhodes commenced her PhD in July 2023 entitled “*NMR relaxometry for biomedicine and advanced materials*”. Supervisors: **Dr Lionel Broche** and Prof Nicola Mutch.

Ms Michelle Sader completed her PhD entitled “*Relationships between interoception and emotion awareness in autism and eating disorders*”. She submitted her thesis and undertook her viva voce in

December 2023. She will take a research fellow position in January 2024 working with Dr Waiter and collaborators from University of Edinburgh. Supervisors: **Dr Gordon Waiter** and Dr Margaret Jackson.

Ms Holly Spence submitted PhD thesis entitled "*Investigating the impact of brain iron on neurodegeneration*", passed her viva voce and graduated in June 2023. She is now a research fellow working with Dr Jenna Gergory. Supervisors: **Dr Gordon Waiter, Dr Chris McNeil** and Dr Alan Sneddon.

Mr Robert Stormont submitted his PhD thesis entitled "*The Field-Cycled NMR Phased Array Coil*" and passed his viva voce in September 2023. Supervisors: **Prof David Lurie** and **Dr Lionel Broche**. He continues to work for GE Healthcare in the USA and as a collaborator in the development of FCI.

Mr Gabriel Zihlmann transferred from Basel in April 2023 and is in year 2 of a PhD entitled "*Development of model-based, multi-parametric MR imaging and reconstruction at low magnetic field: application to the early detection of stroke*". Supervisors: **Dr Mathieu Sarracanie** and **Dr Najat Salameh**.

Publications

Sader M, Waiter GD, Williams JHG. The cerebellum plays more than one role in the dysregulation of appetite: Review of structural evidence from typical and eating disorder populations. *Brain Behav.* 2023 Dec;13(12):e3286. doi: 10.1002/brb3.3286. Epub 2023 Oct 13. PMID: 37830247; PMCID: PMC10726807.

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Orbell L-Y, **Anderson LA**, Abutheraa N. The JAK2V617F mutation and the role of therapeutic agents in alleviating myeloproliferative neoplasm symptom burden. *European Journal of Haematology* 2023 (in press).

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De Vries CF, Colosimo SJ, Staff RT, Dymiter JA, Yearsley J, Dinneen D, Boyle M, Harrison DJ, **Anderson LA***, Lip G* on behalf of the iCAIRD Radiology Collaboration. Impact of Different Mammography Systems on Artificial Intelligence Performance in Breast Cancer Screening. *Radiology Artificial Intelligence* 2023;5(3)e220146. * Joint last author.

Schwarz J, Lizarazu M, Lallier M, **Klimovich-Gray A**. Phonological deficits in dyslexia impede lexical processing of spoken words: Linking behavioural and MEG data. 2023 *Cortex* 171, 204-222.

Klimovich-Gray A, Di Liberto G, Amoruso L, Barrena A, Agirre E, Molinaro N. Increased top-down semantic processing in natural speech linked to better reading in dyslexia. 2023 *NeuroImage* 273, 120072.

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Presentations

Balode L, Dawson D, **Ross PJ**. Optimisation of T1rho MRI for cardiac applications at 3T. British Chapter of ISMRM, Aberdeen, 2023.

Balode L, Dawson D, Gamble D, Kelly R, **Ross PJ**. T1 ρ imaging for detecting takotsubo cardiomyopathy. British Chapter of ISMRM, Aberdeen, 2023.

Ross PJ, **Broche LM**, **Davies G**, **Stormont R**, **Lurie D**, Dawson D. Progress towards cardiac T1 dispersion imaging using field-cycling imaging, British Chapter of ISMRM, Aberdeen 2023.

Senn N, **Mallikourti V**, **Ross PJ**, **Broche LM**, **Waiter GD**, MacLeod MJ. Detection of cerebral small vessel disease using field-cycling MRI. UK Stroke Forum (Birmingham, UK) 2023. [Electronic poster]

Senn N, **Mallikourti V**, **Ross PJ**, **Broche LM**, **Waiter GD**, MacLeod MJ. Assessing severity of cerebral small vessel disease using field-cycling MRI and automated segmentation. Scottish Heart and Arterial disease Risk Prevention Annual Meeting. (Edinburgh, UK) 2023. [SHARP Prize Talk]

Senn N, **Mallikourti V**, **Ross PJ**, **Broche LM**, **Waiter GD**, MacLeod MJ. Detection of haematoma and perihematoma regions of intracerebral haemorrhage using low-field field-cycling imaging – preliminary study results. 8th World Intracranial Hemorrhage Conference (Toronto, CA) 2023. [Talk]

Senn N, **Mallikourti V**, **Ross PJ**, **Broche LM**, **Waiter GD**, MacLeod MJ. Automated segmentation and quantification of cerebral small vessel disease severity using field-cycling MRI. B&IC ISMRM (Aberdeen, UK) 2023. [Talk]

Stewart G, **Mallikourti V**, **Ross PJ**, **Broche LM**, **Waiter GD**, MacLeod MJ, Oren N, **Senn N**. Comparison of pre-processing strategies to inform data-driven classification of small vessel disease patients using field-cycling MRI. BIC-ISMRM (Aberdeen, UK) 2023. [Poster]

Senn N, **Mallikourti V**, **Ross PJ**, **Broche LM**, **Waiter GD**, MacLeod MJ. Field-cycling MRI: Assessing severity of cerebral small vessel disease using field-cycling MRI and automated segmentation. 15th World Stroke Congress (Toronto, CA) 2023. [Electronic poster]. Abstract published: International Journal of Stroke, Volume 18, Issue 3_suppl, 15th World Stroke Congress, Pages 3-420 2023. <https://doi.org/10.1177/17474930231192010>

Senn N, **Mallikourti V**, **Ross PJ**, **Broche LM**, **Waiter GD**, MacLeod MJ. Detection of cerebral small vessel disease using denoised field-cycling MRI. ESMRMB (Basel, CH) 2023. [Poster]. Abstract published: Magn Reson Mater Phy 36 (Suppl 1), 1–328 2023. <https://doi.org/10.1007/s10334-023-01108-9>

Senn N, **Mallikourti V**, **Ross PJ**, **Broche LM**, **Waiter GD**, MacLeod MJ. Field-cycling MRI: Field-cycling MRI: Automated segmentation and quantification of cerebral small vessel disease severity. AI in Pervasive Well-Being and Healthy Ageing Workshop (Glasgow, UK) 2023. [Poster with Lightning Talk]

Senn N, **Mallikourti V**, **Ross PJ**, **Broche LM**, **Waiter GD**, MacLeod MJ. Automated segmentation of cerebral small vessel disease from field-cycling MRI. MIUA (Aberdeen, UK) 2023. [Poster]. Abstract published: Medical Image Understanding and Analysis 27th Annual Conference, MIUA 2023, Aberdeen, UK, July 19–21, 2023, Proceedings. <https://doi.org/10.1007/978-3-031-48593-0>

Senn N, Mallikourti V, Ross PJ, Broche LM, Waiter GD, MacLeod MJ. Detection of cerebral small vessel disease using field-cycling MRI. SINAPSE (Glasgow, UK) 2023. [Talk]

Senn N, Mallikourti V, Ross PJ, Broche LM, Waiter GD, MacLeod MJ. Detection of small vessel disease in patients using field cycling imaging (FCI). Scottish Cardiovascular Forum (Aberdeen, UK) 2023. [Poster]

De Vries CF, Colosimo SJ, Staff RT, Dymiter JA, Yearsley J, Dinneen D, Boyle M, Harrison DJ, Anderson LA, Lip G. Variation in Mammography Imaging Equipment Impacts Artificial Intelligence Performance in Breast Cancer Screening. Abstract published: Medical Image Understanding and Analysis 27th Annual Conference, MIUA 2023, Aberdeen, UK, July 19–21, 2023, Proceedings. <https://doi.org/10.3389/978-2-8325-1231-9>

Philip M, Watts J, Welch A, McKiddie F, Nath M. XGBoost classifier-based survival prediction in head and neck cancer patients using pre-treatment PET images. Abstract published: Medical Image Understanding and Analysis 27th Annual Conference, MIUA 2023, Aberdeen, UK, July 19–21, 2023, Proceedings. <https://doi.org/10.3389/978-2-8325-1231-9>.

Mellis S, Zhang Y, McAteer D. Awareness of Radiation Risks by Medical Students & Referrers Requesting Radiological Examinations in the North of Scotland: An Audit. 8th NHS Grampian Medical Education Symposium, Aberdeen, 10 November 2023.

Zhang Y, Muranovs P, Mitchell-Hay R. Navigating Change: A closed loop audit of Year 5 Undergraduate Radiology Teaching in the Post-COVID Era. 8th NHS Grampian Medical Education Symposium, Aberdeen, 10 November 2023.

Invited lectures

Lurie DJ. 19-23 June 2023: Invited Lecture “Basics of MRI & Field-Cycling Imaging” at AMPERE NMR School (online presentation).

Waiter GD. 29 June 2023: Workshop on 'AI in Pervasive Well-Being and Healthy Ageing' – Keynote speaker.

Waiter GD. 31 August 2023 ARUK Scotland Network Meeting Invited Lecture “The New Iron Age”.

McNeil CJ. September 2023. Alzheimer’s UK Scottish Network Meeting. “Can we detect cognitive decline from a brain MRI?”

Klimovich-Gray A. Invited talk, York Psychology Department.

Klimovich-Gray A. October 2023. Invited Workshop lead, Cutting EEG Garden in Dundee “MNE Python for EEG data analysis”.

Waiter GD. 6 December 2023. Research Facilities Showcase 2023 “ABIC”.

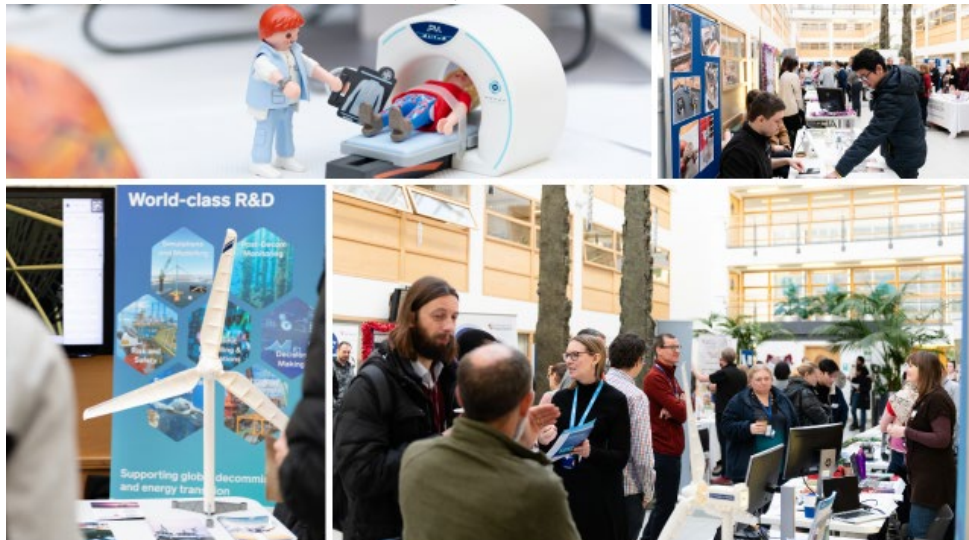
Sarracanie M. 1 Dec 2023. IMS PI Seminar series. “Low-field MRI on the rise: a glimpse into an emerging new MRI modality”.

Public Engagement

[Cafe Sci – MRI Research in Aberdeen: the past, present and future – explorathon](#)

Working Together to Break Boundaries. <https://www.youtube.com/watch?v=hF7H311SSHc>

Research Showcase, Institute of Medical Sciences, December 2023



Current grants

Enhancing Eating Disorder research networks: The Eating Disorders and Autism Collaborative (EDAC) **Waiter GD**. MRC: £227,530.72 01/08/23 - 31/07/25.

Early detection of Alzheimer's disease with glucoCEST MRI: a proof of concept study. **Waiter GD**. & Myint P. Scottish Government - Chief Scientist Office: £260,978.55 01/01/22-14/05/25.

Proving The Utility Of Fast Field Cycling MRI In Stroke And Small Vessel Disease (PUFFINS). MacLeod M, **Broche L**, Levi R, Oren N. & **Waiter GD**. Scottish Government - Chief Scientist Office: £299,590.00 01/04/21-31/05/23.

Seeing through the chemofog: A pilot study to determine the neural correlates of chemotherapy induced cognitive impairment. **Waiter GD**, Elsberger B. & **McNeil C**. Friends of ANCHOR: £14,909.00 01/08/22-31/01/24

Effect of Radiofrequency denervation on Brain structure, function and connectivity in chronic Low Back Pain patients – a pilot study **Waiter GD**. Scottish Imaging Network: A Platform for Scientific Excellence: £4,394.80 01/04/22-30/06/23.

Seeing through the chemofog: Neural correlates of chemotherapy induced cognitive impairment. **Waiter GD**, Elsberger B. & McNeil C. NHS Grampian Endowments: £11,785.00 01/04/22-31/03/23.

Investigating the impact of Brain Iron on Neurodegeneration – biochemistry costs. **Waiter GD**. Roland Sutton Academic Trust: £2,575.00 1/08/22-31/07/23.

The new iron age - investigating the impact of brain iron on neurodegeneration (PhD Studentship). **Waiter GD**. £80,176, Roland Sutton Academic Trust. Feb 2020-Jan 2023.

Characterising the centralised pain phenotype in chronic rheumatic disease - a stride towards personalised analgesia (Centaur). Macfarlane G, Hollick R, Jones G & **Waiter GD**. Versus Arthritis (Previously Arthritis Research UK), £11,134. Jan 2019-Jan 2023.

The Next Leap in Cardiac Magnetic Resonance Imaging: Cycling the Field (TITAN). Dawson D, **Lurie D**, **Broche L**, **Ross PJ**, Abbas, H. British Heart Foundation, £278,000, 2020-2023.

FFC Portfolio of studies to enable innovation in imaging using Fast Field-Cycling technology. Keltie A, **Lurie D**, Stansfield I, **Broche LM**, MacLeod MJ, Mutch N. NHS Grampian Endowments, £178,920, 2022-2024.

Detecting Cardiac Fibrosis using T1 rho Magnetic Resonance Imaging. **Ross J**, Dawson D. Northwood Trust PhD Scholarship, £70,000, 2022-2026.

A Novel Molecular Imaging Technique, Fast Field-Cycling, To Assist Clinical Decisions In Kidney Health And Disease. **Broche LM**. NHS Grampian Endowments, £15,010, 2021-2023.

Dissemination of radiological impact of field-cycling MRI for brain imaging applications and early career researcher support. **Senn N**, **Waiter GD**, MacLeod MJ. Roland Sutton Academic Trust, £6576.13, 2023-2025.

Coupling novel non-invasive imaging methods and new gene therapies to detect and treat type 2 diabetes. **Broche LM**. EastBio, £82,256, 2021-2025.

Acute Stroke MRI Exploiting the Physics of Low-Field Regimes. **Sarracanie M**. Swiss National Science Foundation, £77,405.60, 2023-2024.

Proving the Utility of Fast Field Cycling MRI in Small Vessel Disease - a focus on Brain Health. **Waite GD, Broche L, MacLeod MJ, Senn de Vries N, Oren N, Ross PJ, Levi R**. CSO, £ 434,240.80 (under review)

PrIOritising early detection of KNEE osteoaRthritis – PLOKNEER, De Bari C, Roelofs A, Macfarlane G, MacLennan G, **Ross PJ**, Hollick R. Versus Arthritis, £1,198,138.76 (under review).

BHF Centres of Excellence, British Heart Foundation: lead applicants Delibegovic M & Dawson D. Theme 1: Improving diagnosis through state-of-the-art imaging and data sciences: lead Macleod MJ, co-lead **Ross PJ**, £2,183,500.50 (under review).

Examining the use of artificial intelligence risk algorithms to predict future breast cancer in otherwise normal mammograms. Staff RT, **Lip G, De Vries CF**, Anderson LA. £77,139.89. Submitted to Friends of Anchor.

End of Report