

Curriculum Vitae - David J. Lurie

PERSONAL DETAILS:

Name: David John Lurie

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Bibliography: www.abdn.ac.uk/staffpages/uploads/mpb096/Bibliography_DJ_Lurie.pdf
Research project: www.fjc-mri.org

QUALIFICATIONS:

B.Sc. Hons. 2(i) Natural Philosophy (Physics)	University of Aberdeen	1979
M.Sc. Radiation Physics	Bart's Medical College, University of London	1980
Ph.D. Medical Physics	Bart's Medical College, University of London	1984

MEMBERSHIP OF PROFESSIONAL BODIES:

Chartered Physicist, Fellow of the Institute of Physics (C.Phys., F.Inst.P.); 2005
Chartered Scientist, Fellow of the Institute of Physics and Engineering in Medicine (C.Sci., F.I.P.E.M.); 1998
Full Member of the International Society for Magnetic Resonance in Medicine.
Full Member of the International EPR (ESR) Society.

EMPLOYMENT HISTORY:

Academic Line Manager	University of Aberdeen	2015 - present
Personal Chair in Biomedical Physics	University of Aberdeen	2002 - present
Visiting International Scholar	Ohio State University, USA	August 2004, August 2005
Visiting Scientist (Faculty Position)	Johns Hopkins University Medical School, Baltimore, USA	July 2000 - June 2001
Senior Lecturer	University of Aberdeen	1992 - 2002
Lecturer	University of Aberdeen	1985 - 1992
Research Assistant/Research Fellow	University of Aberdeen	1983 - 1985

KEY INDICATORS:

- Significant research experience (>30 years) and international reputation in magnetic resonance imaging technology, techniques and applications
- Wide knowledge of medical physics, medical imaging and medical devices
- £9.4M in research funding as Principal Investigator over the last 10 years
- Co-ordinator and PI of €6.6M EU Horizon-2020 research project (9 partners, 6 countries, 2016-20)
- 74 invited, keynote and plenary lectures world-wide
- Author of 7 book chapters, 70 peer-reviewed papers and over 230 conference abstracts
- Extensive experience of committee and panel membership
- Co-ordinated Medical Physics MSc programme at Aberdeen University for 15 years (2001-16)
- Wide experience (>30 years) of teaching medical physics at postgraduate level
- External Examiner of MSc programmes and PhD candidates, UK and internationally

RESEARCH INTERESTS:

I have worked in the area of magnetic resonance imaging technology and applications since 1983.

In 1987 I demonstrated a new method of imaging free radicals called Proton-Electron Double-Resonance Imaging (PEDRI) which combines electron spin resonance (ESR) with MRI and enables high resolution images of free radical distributions to be generated in living animals. Research groups in Europe, Japan, Brazil and the USA are now using PEDRI in their bio-medical research programmes.

During the last decade my research effort has concentrated on Fast Field-Cycling MRI (FFC-MRI). Whereas standard MRI scanners operate at a single magnetic field, FFC-MRI scanners have the ability to switch magnetic field rapidly during a scan, thereby obtaining information on the variation of the NMR relaxation times with magnetic field strength. Results are indicating that this can provide a valuable new contrast mechanism for clinical MRI. In 2015 a consortium of seven research laboratories and two companies, coordinated by me, secured €6.60m (£5.69m) from the European Union's Horizon 2020 scheme to develop FFC-MRI as a clinical imaging modality.

MAIN EXTERNAL GRANTS AWARDED (LAST 10 YEARS):

Awarding Body	Title	Applicants (PI shown in bold type)	Duration	Amount Awarded
Research Councils UK (RCUK), administered by EPSRC	Fast Field-Cycling Magnetic Resonance Imaging	D.J. Lurie N. Booth, F. Gilbert, C. Linington, A. Murray, G. Riedel, P. Tiesmann, H. Wackerhage	54 months from May 2007	£2.4M
Arthritis Research UK	Assessment of Fast Field-Cycling MRI for the Imaging of Articular Cartilage and Osteoarthritis	G.P. Ashcroft , D.J. Lurie, T.W. Redpath, T. Ahearn, R. Aspden, A. Lee	27 months from Nov 2011	£190,832
EPSRC	A UK Magnetic Resonance Basic Technology Centre for Doctoral Training (UK-MRBT-CDT)	M. Newton (Warwick) , D.J. Lurie, G. Smith (St. Andrews), M. Smith (Warwick), W. Kockenberger (Nottingham), M. Levitt (Southampton)	84 months from April 2011	£1.98M
EPSRC	Field-Cycling Add-on for Clinical MRI Scanners	D.J. Lurie	12 months from Jan 2012	£199,618
EPSRC	Zero-Field MRI to Enhance Diagnosis of Neurodegeneration	D.J. Lurie , L.M. Broche, C. Counsell, G. Riedel, A. Murray	43 months from February 2013	£979,173
DSTL	Sensitivity Enhancement Techniques for Magnetic Resonance – Phase 1	D.J. Lurie	9 months from October 2013	£63,054
DSTL	Sensitivity Enhancement Techniques for Magnetic Resonance – Phase 2 (including extension)	D.J. Lurie	10 months from March 2015	£126,202
European Union Horizon 2020	Improving Diagnosis by Fast Field-Cycling MRI (IDentIFY)	D.J. Lurie (Coordinator of 9- centre collaborative project)	48 months from January 2016	£5.69M (€6.60M)
DSTL	Magnetic Resonance Techniques for Explosives Detection	D.J. Lurie	3 months from January 2017	£36,738

INVITED LECTURES AT CONFERENCES AND WORKSHOPS:

Since 1990 I have been invited to lecture at a total of 74 conferences as a Plenary, Keynote or Invited speaker, including the following key selection (from 19 events) in the last 5 years:

- **February 2012:** Guest Lecture at 20th JSPS Core-to-Core Symposium, Fukuoka, Japan.
- **May 2013:** Invited lecture at the 8th Conference on Field Cycling NMR Relaxometry, Torino, Italy.
- **June 2014:** Invited lecture at the AMPERE NMR School, Zakopane, Poland. *Winner of Best Lecture award.*
- **September 2014:** Keynote lecture at the British Chapter ISMRM Annual Meeting, Edinburgh, UK.
- **September 2014:** Invited lecture at the 8th European Conference on Medical Physics, Athens, Greece.
- **April 2015:** Invited lecture at the National Danish Medical Physics Meeting, Funen, Denmark.
- **September 2015:** Keynote lecture at the British Chapter ISMRM Annual Meeting, London, UK.
- **March 2016:** Invited Postgraduate Education lecture at European Congress of Radiology, Vienna, Austria.
- **September 2016:** Invited lecture at the 1st European Congress of Medical Physics, Athens, Greece.

NATIONAL AND EXTERNAL COMMITTEE MEMBERSHIP:

- **2001-08:** Member of the Board of the Royal Society of Chemistry's ESR Group.
 - **2007-present:** Member of the Fellowship Panel of the Institute of Physics.
 - **2009-13:** Member of the Healthcare Science Advisory Committee (NHS Education for Scotland).
 - **2013-present:** Member of Research Degrees Committee of the University of the Highlands & Islands, UK.
 - **2014-present:** Member of Medical Physics Promotions Review Panel for Greek universities.
 - **2015-present:** Member of MSc Course Accreditation Panel of Inst. of Physics and Engineering in Medicine.
 - **2014-16:** Member of the Physics in Radiology subcommittee of the European Congress of Radiology.
 - **2016-present:** Vice-Chair of EU COST Action CA15209, "European Network on NMR Relaxometry".
 - **2017:** Chair of the Physics in Radiology subcommittee of the European Congress of Radiology.
 - **2017-present:** Member of the Programme Planning Committee of the European Congress of Radiology.
 - **2017:** Scientific Chair of the European School for Medical Physics Experts on MRI, to be held in Prague.
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TEACHING AND SUPERVISION:

- For over 30 years I have given lectures on MRI physics to students on the University of Aberdeen's MSc and programmes in Medical Physics.
 - I have supervised 12 Ph.D. students, who successfully graduated. I currently supervise two Ph.D. students.
 - From 1994 to 2005 I organised and lectured on our Department's annual Aberdeen Summer School on Magnetic Resonance Imaging (a week-long residential course with participants from around the world).
 - In 1996, 2003, 2006 and 2013 I helped to organise Schools on MRI held at Khon Kaen University, Thailand. I also lectured on these Schools.
 - From 1999-2009 I lectured on the annual Training Course in Magnetic Resonance Imaging and Spectroscopy, held at the Royal Marsden Hospital, Sutton, Surrey, under the auspices of the IPeM.
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EXTERNAL EXAMINING AND ASSESSMENT:

- External Examiner for PhDs on 8 occasions, at Universities in the UK, Finland and the Netherlands.
 - 2007-10: External Examiner for MSc in Physical Sciences in Medicine, at Trinity College, Dublin, Ireland.
 - 2011-14: External Examiner for Master of Medical Physics, University of Malaya, Kuala Lumpur, Malaysia.
 - 2014-18: External Assessor of Master of Medical Physics degree programme, University of Malaya, Malaysia.
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SELECTED RECENT PUBLICATIONS:

- Full bibliography can be found at www.abdn.ac.uk/staffpages/uploads/mpb096/Bibliography_DJ_Lurie.pdf
- Lurie D.J., Aime S., Baroni S., Booth N.A., Broche L.M., Choi C.-H., Davies G.R., Ismail S., Ó hÓgáin D. and Pine K.J. "Fast Field-Cycling Magnetic Resonance Imaging", *Comptes Rendus Physique* **11**, 136-148 (2010).
- Choi C.-H., Hutchison J.M.S. and Lurie D.J. "Design and construction of an actively frequency-switchable RF coil for field-dependent Magnetisation Transfer Contrast MRI with Fast Field-Cycling", *J. Magn. Reson.* **207**, 134-139 (2010).
- Ó hÓgáin D., Davies G.R., Baroni S., Aime S. and Lurie D.J. "Use of Contrast Agents with Fast Field-Cycling Magnetic Resonance Imaging", *Phys. Med. Biol.* **56**, 105-115 (2011).
- Broche L.M., Ismail S.R., Booth N.A. and Lurie D.J. "Measurement of Fibrin Concentration by Fast Field-Cycling NMR", *Magn. Reson. Med.* **67**, 1453-1457 (2012).
- Broche L.M., Ashcroft G.P. and Lurie D.J. "Detection of osteoarthritis in knee and hip joints by FFC NMR", *Magn. Reson. Med.* **68**, 358-362 (2012).
- Mitchell J., Broche L.M., Chandrasekera T.C., Lurie D.J. and Gladden L.F. "Exploring Surface Interactions in Catalysts using Low Field Nuclear Magnetic Resonance", *J. Phys. Chem. C*, **117**, 17699-17706 (2013).
- Pine K.J., Goldie F. and Lurie D.J. "In vivo field-cycling relaxometry using an insert coil for magnetic field offset", *Magn. Reson. Med.* **72**, 1492-1497 (2014).
- Broche L.M., Ross P.J., Pine K.J. and Lurie D.J. "Rapid multi-field T1 estimation algorithm for fast field-cycling MRI", *J. Magn. Reson.*, **238**, 44-51 (2014).
- Ross P.J., Broche L.M. and Lurie D.J. "Rapid Field-Cycling MRI using Fast Spin-Echo", *Magn. Reson. Med.*, **73**, 1120-1124 (2015).