

Curriculum Vitae - David J. Lurie

Name: David John Lurie
Work Address: School of Medicine, Medical Science & Nutrition, **Tel.:** (01224) 437828
University of Aberdeen,
Aberdeen AB25 2ZD, UK **e-mail:** d.lurie@abdn.ac.uk
Web: **Personal page:** www.abdn.ac.uk/staffnet/profiles/d.lurie
Bibliography: www.abdn.ac.uk/staffpages/uploads/mpb096/Bibliography_DJ_Lurie.pdf
Research projects: www.abdn.ac.uk/research/jfc-mri and www.identify-project.eu

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

FELLOWSHIP OF PROFESSIONAL BODIES & CHARTERED STATUS:

Fellow of the Institute of Physics (F.Inst.P.)	2005
Fellow of the Institute of Physics and Engineering in Medicine (F.I.P.E.M.)	1998
Chartered Scientist (C.Sci.) – The Science Council (UK)	2004
Chartered Physicist (C.Phys.) – Institute of Physics (UK)	1992

MEMBERSHIP OF LEARNED SOCIETIES:

Full Member of the International Society for Magnetic Resonance in Medicine
Full Member of the International EPR (ESR) Society
Member of the European Society of Radiology

EMPLOYMENT HISTORY:

Academic Line Manager	University of Aberdeen	2015 - present
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
Lecturer / Senior Lecturer	University of Aberdeen	1985 - 2002
Research Assistant / Research Fellow	University of Aberdeen	1983 - 1985

KEY INDICATORS:

-
- Awarded the Academic Gold Medal by the Institute of Physics & Engineering in Medicine (IPEM) (2017)
 - Appointed as Vice-chair of the Communications and Publications Committee of the European Federation of Organisations for Medical Physics (EFOMP), commencing January 2019
 - Significant research experience (>30 years) and international reputation in magnetic resonance imaging technology, techniques and applications
 - £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, Jan 2016 – Dec 2019)
 - 88 invited, keynote and plenary lectures world-wide
 - Author of 8 book chapters, 74 peer-reviewed papers, 5 patents and over 270 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 of teaching, organising and assessing 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. My 1988 paper on PEDRI has been cited 162 times (Lurie et al., J.Magn.Reson. **76**, 366-370 (1988); DOI: 10.1016/0022-2364(88)90123-0).

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.

RECENT EXTERNAL GRANTS AWARDED:

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. Lington, 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, et al.	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)
Wellcome Trust ISSF	Preparatory work towards novel breast-scanning technology using Fast Field-Cycling MRI	D.J. Lurie , L.M. Broche, Y. Masannat, T. Gagliardi, S.D. Heys	6 months from December 2017	£ 19,773
DSTL	Magnetic Resonance Techniques for Explosives Detection	D.J. Lurie	5.5 months in 2017 and 2018	£70,735

INVITED LECTURES AT CONFERENCES AND WORKSHOPS:

Since 1990 I have been invited to lecture at a total of 88 conferences as a Plenary, Keynote or Invited speaker, including the following during the last three years:

- **March 2016:** Invited Postgraduate Education lecture at European Congress of Radiology, Vienna, Austria.
- **June 2016:** Invited lecture at the AMPERE NMR School, Zakopane, Poland.
- **September 2016:** Invited lecture at the European Congress of Medical Physics, Athens, Greece.
- **March 2017:** Invited Postgraduate Education lecture at European Congress of Radiology, Vienna, Austria.
- **March 2017:** Invited lecture at the EFOMP Workshop during the European Congress of Radiology, Vienna.
- **March 2017:** Invited lecture at the Alzheimer's Research UK conference, Aberdeen, UK.
- **June 2017:** Invited lecture at the 10th Conference on Field-Cycling NMR Relaxometry, Olsztyn, Poland.
- **June 2017:** Invited lecture at the AMPERE NMR School, Zakopane, Poland.
- **July 2017:** Invited lecture at the European Congress on Magnetic Resonance (EUROMAR), Warsaw, Poland.
- **July 2017:** Invited lecture at the International Conference on Electron Paramagnetic Resonance Spectroscopy and Imaging of Biological Systems, Morgantown, West Virginia, USA.
- **September 2017:** Plenary lecture at the Italian Magnetic Resonance Discussion Group, Fisciano, Italy.
- **April 2018:** Invited lecture at symposium "Image and Networks of the Brain 2018", Hamburg, Germany.

- **May 2018:** Invited lecture at conference “Challenges for Magnetic Resonance in Life Sciences”, Grosseto, Italy.
 - **June 2018:** Keynote lecture at the World Congress on Medical Physics & Biomedical Engineering, Prague.
 - **June 2018:** Invited lecture at the AMPERE NMR School, Zakopane, Poland.
 - **August 2018:** Invited educational lecture at the European Congress of Medical Physics, Copenhagen, Denmark.
 - **August 2018:** Keynote lecture at Society for Magnetic Resonance Angiography Annual Meeting, Glasgow, UK.
-

FUTURE INVITED LECTURES:

- **January 2019:** Invited lecture for the Institution of Engineering and Technology, Scotland North, Aberdeen, UK.
 - **February 2019:** Invited lecture at “Pumps & Pipes UK” Conference, Aberdeen, UK.
 - **April 2019:** Invited lecture at Annual Intl. Meeting of the Royal Society of Chemistry EPR Group, Glasgow, UK.
 - **June 2019:** Invited lecture at the AMPERE NMR School, Zakopane, Poland.
-

PUBLIC-ENGAGEMENT ACTIVITIES:

- **October 2015:** I gave an invited public lecture on MRI in the series “Meet the Expert: James Clerk Maxwell & Electromagnetism” at Aberdeen Science Centre.
 - **April 2016:** Invited to lecture on MRI physics to senior pupils at Belfast High School, Northern Ireland.
 - **May 2017:** “The Hidden World of MRI” – public lecture at the annual May Festival in Aberdeen.
 - **October 2017:** “MRI scanning: a magnetic window to the body” – public lecture in the Café Scientifique series (Waterstone’s bookshop, Aberdeen).
-

AWARD:

- **2017:** Academic Gold Medal of the Institute of Physics and Engineering in Medicine (IPEM – the UK professional body for Medical Physics and Biomedical Engineering), for “outstanding contribution to the advancement of academic practice”.
-

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.
 - **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 (MRI), in Prague (July 2017).
 - **2017-18:** Member of Scientific Committee of the second European Congress of Medical Physics (ECMP 2018) to be held in Copenhagen (August 2018).
 - **2019-:** Vice-chair of Communications and Publications Committee of the European Federation of Organisations for Medical Physics (EFOMP).
-

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 co-organised Schools on MRI at Khon Kaen University, Thailand.
- 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.
- In 2018 I delivered 15 hours of training on MRI Physics for the Institute of Advanced Allied Health Studies of the Hong Kong Hospital Authority. My lectures were attended by approximately 80 health professionals.

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.
- **2015-present:** Member of MSc Course Accreditation Cttee of Inst. of Physics and Engineering in Medicine.
- **2017-19:** Assessor for the EFOMP Examination Board (EEB) – assessing candidates for the European Diploma of Medical Physics (EDMP) and the European Attestation Certificate.
- **2018:** Chief Examiner for Part II Resident Physicist Examinations, Hong Kong Assocn. of Medical Physics.

GRANT REFEREEING:

- I regularly review grant proposals for a number of funding bodies, including UK Research Councils, the European Union (including ERC) and charities.
- I am on the panel of referees for the Italian Ministry for University and Scientific Research (MURST), and I regularly review grant applications for them.
- I was a member of the Biomedical Engineering panel of the Academy of Finland’s Research Council for Natural Sciences and Engineering (2008 and 2014).
- I was a member of a review panel at EPSRC on applications for “Challenging Engineering and Royal Academy of Engineering Senior Research Fellows” (2012).
- I was a member of the Royal Society Challenge Grants Panel (2017-18).

ADMINISTRATION:

- From 2001 to 2016 I was Co-ordinator of the M.Sc. programmes in Medical Physics and Medical Imaging. Prior to this I was Medical Physics course organiser (1999-2001) and admissions coordinator (1992-1999).
- I have sat on many University committees, including Academic Standards Committee (2002-10), Graduate School Committee (2006-16), Quality Assurance Committee (2011-present), University Senate (2015-17).

OTHER INTERESTS:

- I have attended evening classes in French at Aberdeen University’s Language Centre, progressing to an “Advanced” class. I have delivered invited lectures on my research in French on two occasions.
- Since 2005 I have been learning to play the piano. See www.youtube.com/user/davidell11
- I am a keen photographer, especially of architecture and landscapes. See www.flickr.com/photos/davidlurie/

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).
- 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., 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).
- Ross P.J., Broche L.M. and Lurie D.J. “Rapid Field-Cycling MRI using Fast Spin-Echo”, *Magn. Reson. Med.*, **73**, 1120 (2015).
- Broche L.M., Ross P.J., Davies G.R. and Lurie D.J. “Simple algorithm for the correction of MRI image artefacts due to random phase fluctuations”, *Magn. Reson. Imaging*, **44**, 55-59 (2017).
- Zampetoulas V., Lurie D.J. and Broche L.M. “Correction of Environmental Magnetic Fields for the Acquisition of Nuclear Magnetic Relaxation Dispersion Profiles Below Earth’s Field”, *J. Magn. Reson.*, **282**, 38-46 (2017).
- Kishimoto S., Cherukiri M.K., Khramtsov V.V., Utsumi H. and Lurie D.J. “In vivo Application of Proton Electron Double Resonance Imaging”, *Antioxidants & Redox Signaling*, **28**, 1345-1364 (2018).
- Lurie D.J., Ross P.J. and Broche L.M. “Techniques and Applications of Field-cycling Magnetic Resonance in Medicine”, in: “Field-cycling NMR Relaxometry: Instrumentation, Model Theories and Applications”; *New Developments in NMR* No. 18, Kimmich R., ed., Royal Society of Chemistry, UK, pp 358-384 (2018).
- Bödenler M., de Rochefort L., Ross P.J., Chanet N., Guillot G., Davies G.R., Gösweiner C., Scharfetter H., Lurie D.J. and Broche L.M. “Comparison of fast field-cycling magnetic resonance imaging methods and future perspectives”, *Molecular Physics* (2018). DOI: 10.1080/00268976.2018.1557349