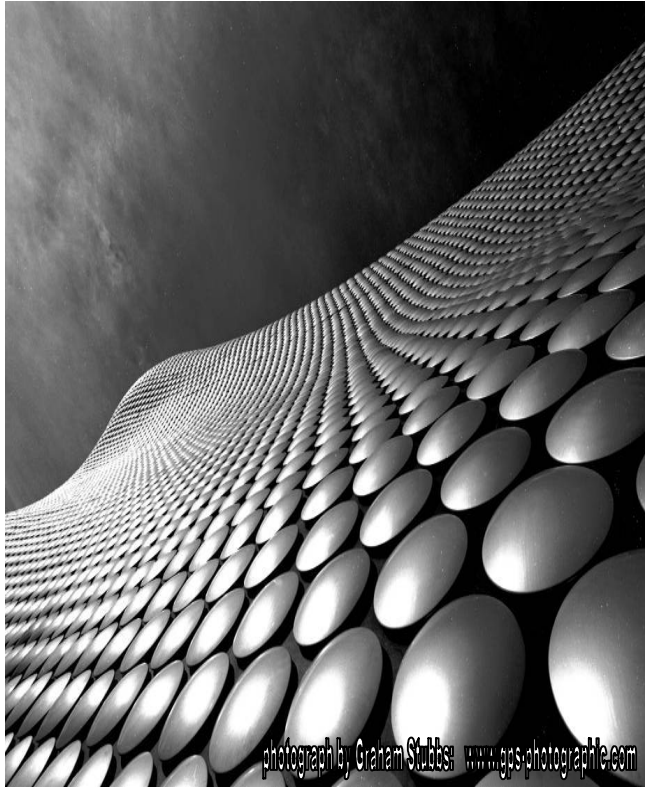


**13th Annual Meeting of the British Chapter
of the International Society for Magnetic
Resonance in Medicine**



**5 – 7 September 2007
Birmingham Business School
University of Birmingham**

**Organising committee: R Kauppinen, M Britton, G Humphreys, A Peet, M Overduin,
G Barnes, P Furlong, G Parker, P Gowland, D Auer**



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MRI Guide

WARDRAY
PREMISE

PROGRAM

Birmingham Business School, University of Birmingham

Wednesday 5th September

WORKSHOP

MR IN TREATMENT MONITORING: FOCUS ON TECHNOLOGY

Chaired by Andrew PEET

- 11:30 **Registration**
- 12:00 Opening address
Andrew Peet (University of Birmingham)
- 12:10 *Perfusion MRI*
David Collins (University College, London)
- 12:40 *Applications of Perfusion MRI*
Alan Jackson (University of Manchester)
- 13:10 *Diffusion MRI*
Derek Jones (University of Cardiff)
- 13:40 Lunch
- 14:10 *Applications of Diffusion MRI*
Dorothee Auer (University of Nottingham)
- 14:40 *MRS techniques*
Franklyn Howe (University of London)
- 15:10 *Applications of MRS*
Andrew Blamire (University of Newcastle)
- 15:40 Tea/Coffee
- 16:10 *Metabolomics*
Jules Griffin (University of Cambridge)
- 16:40 *Molecular Imaging by MR*
Kevin Brindle (University of Cambridge)
- 17:10 Round up
The Faculty
- 18:00 Buffet snacks with wine

Thursday 6th September

- 8:00 **Registration:** Business School Foyer
- 8:45 Opening: Main Lecture Theatre, Business School
Local Organisers
British Chapter Business meeting

- Session Chair: by Martin Leach (Institute of Cancer Research, Sutton)
- 09:15 ***The Annual Bill Moore Lecture***
 I1: *Technical Innovations and Market Realities: Lesson from MRI*
 Ian Pykett (Innovation Commercialisation Ltd)
- Session Chair: David Thomas (University College London)
- 10:00 I2: *Parallel Transmit*
 Paul Glover (University of Nottingham)
- 10:30 O1: *Modification of digital phantoms for use in PET/MR attenuation correction*
 Ian Malone, R.E. Ansorge, T.A. Carpenter, T.D. Fryer (Department of Physics, University of Cambridge)
- 10:42 O2: *An MRI compatible manipulator to aid magic angle experiments in vivo*
 Hatham Elhawary, A. Zivanovic, M. Rea, Z.T.H. Tse, D. McRobbie, I. Young, M. Paley, B. Davies, G. Bydder, M. Lamperth (Department of Mechanical Engineering, Imperial College, London)
- 10:54 O3: *Preliminary investigation on the improvement in SNR in low field MRI using liquid nitrogen-cooled copper receive-only coil*
 H.S. Cheong, I. Volkov, E. Krjukov, J.M. Wild, M.N. Paley (Department of Academic Radiology, University of Sheffield)
- 11:06 O4: *Retrospectively gated flow measurement with k-t variable-density undersampling*
 Yuehui Tao, I. Marshall (Medical Physics and SFC Brain Imaging Centre, University of Edinburgh)
- 11:18 Coffee
- Session Chair: Risto Kauppinen (Dartmouth College, USA)
- 11:50 I3: *Seeing invisible: MRI without echoes using frequency swept pulses*
 Michael Garwood (University of Minnesota, USA)
- 12:20 O5: *Diagonal-SPRITE in vivo using long T_2^* suppression pulse at 9.4T*
 Andrea Protti, A. Herlily, J. Tessier, J. Bell (Imaging Sciences Department, Imperial College, London)
- 12:32 O6: *STREACQ: Short TR/E acquisition*
 Martyn Paley, E. Krjukov, M. Lamperth, I. Young (Department of Academic Radiology, University of Sheffield)
- 12:44 O7: *Under-sampled short TE radial sequences for hyperpolarized gas MRI*
 Jim M. Wild, K.J. Cooper (Department of Academic Radiology, University of Sheffield)
- 12:58 **Lunch and Posters (odd numbers): G06 Business School**
- Session Chair: Julian Griffin (University of Cambridge)
- 14:15 I4: *New NMR Methods for Metabolomics*
 Ulrich Gunther (University of Birmingham)
- 14:45 O8: *^1H -MRS detects differences with location in juvenile pilocytic astrocytomas and predicts response to treatment in supratentorial tumours*
 Lisa M. Harris, N.Davies, L. MacPherson, S. Lateef, K. Natarajan, M.-A. Brundel, S.Sgouros, R. Grundy, T.N. Arvanitis, A.C. Peet (Paediatrics and Child Health, University of Birmingham)
- 14:57 O9: *An automated quality control protocol for MR spectra of brain tumours*

- Alan J Wright, C.Arús, J. Wijnen, J.R. Griffiths, B. Celda, F.A. Howe (St George's Hospital, University of London)
- 15:09 O10: *Simultaneous lactate editing and water suppression using BASING pulses at 3 Tesla*
Mary McLean, A.N. Priest, J.R. Griffiths (CRUK Cambridge Research Institute, University of Cambridge)
- 15:21 O11: *High-energy phosphate metabolism in primary biliary cirrhosis (PBC) patients monitored by ³¹P magnetic resonance spectroscopy: abnormalities in pH handling*
Kieran G. Hollingsworth, A.M. Blamire, R. Taylor, D.E. Jones, J.L. Newton (Newcastle MR Centre, University of Newcastle)
- 15:33 Tea/coffee
- Session Chair: Michael Overduin (University of Birmingham)
- 16:10 **The Debate:**
The motion: This house believes that non-proton MR imaging will remain no more than a niche activity for clinical examinations
FOR: Andrew Blamire (University of Newcastle) and Penny Gowland (University of Nottingham)
AGAINST: Jo Hajnal (Imperial College, London) and Ian Marshall (University of Edinburgh)
- 18:30 Dinner
Birmingham City Council Hall, 1 Victoria Square, Birmingham

Friday 7th September

- 8:00 **Registration:** Business School Foyer
- Session Chair: Andrew Peet (University of Birmingham)
- 8:30 I5: *Large FOV MRI: Screening oncological disease*
Gerwin Schmidt (University Hospital of München, Germany)
- 9:00 O12: *A novel method to tackle difficulties of liver volume and major hepatic vessel trunk segmentations in LAVA MRI data sets*
Ying Chi, P. Cashman, F. Bello, R. Kitney (Department of Bioengineering, Imperial College London)
- 9:12 O13: *A one degree of freedom MR compatible haptic system for tissue palpation*
Zion Tsz Ho Tse, H. Elhawary, A. Zivanovic, M. Lamperth (Department of Mechanical Engineering, Imperial College London)
- 9:24 O14: *Reduction of random errors in ASL quantitative cerebral perfusion and arterial transit time maps using image denoising*
Jack A Wells, D.L. Thomas, M.D. King, A. Connelly, M.F. Lythgoe, F. Calamante (Department of Medical Physics and Bioengineering, University College London)
- 9:36 O15: *Feasibility of first-pass measurement of tumour perfusion using DCE-MRI and DCE-CT*
Habib Ashoor, D.L. Buckley (Imaging Science and Biomedical Engineering, University of Manchester)

- 9:44 Coffee
- Session Chair: Laura Parkes (University of Liverpool)
- 10:15 I6: *MR in high risk of cancer*
Martin Leach (Institute of Cancer Research, Sutton)
- 10:45 O16: *Dual input pharmacokinetic model for DCE-MRI liver studies including plasma fraction estimation*
Matthew Orton, J. d'Arcy, D.-M. Koh, D. Collins, D. Hawkes, M. Leach (Institute of Cancer Research, Sutton)
- 10:57 O17: *Comparison of ADC and DCE-MRI measured v_e in cerebral tumours*
Samantha J. Mills, C. Soh, C. Rose, S. Cheung, S. Zhao, G.J.M. Parker, A. Jackson (Imaging Science and Biomedical Engineering, University of Manchester)
- 11:09 O18: *Employing bootstrapping methods to examine the need for pulse triggering in diffusion-weighted MR imaging*
Zoltan Nagy, N. Weiskopf, R. Deichmann (Wellcome Department of Imaging Neuroscience, University College London)
- 11:21 O19: *Sub-voxel reconstruction of fibre orientations in diffusion MRI*
Shahrum Nedjati-Gilani, G.J.M. Parker, M.G. Hall, D.A. Alexander (Imaging Science and Biomedical Engineering, University of Manchester)
- 11:33 O20: *Field strength dependence of R_1 and R_2^* relaxivity of a blood pool contrast agent measured ex vivo in human blood*
Lei Jiang, H. Blockley, C. Ludman, S. Francis, P Gowland (Sir Peter Mansfield Magnetic Resonance Centre, University of Nottingham)
- 11:45 O21: *Atlas techniques for mouse brain phenotyping*
Steve J. Sawiak, N.I. Wood, G.B. Williams, A.J. Morton, T.A. Carpenter (Wolfson Brain Imaging Centre, University of Cambridge)
- 11:57 **Lunch and Posters (even numbers): G06 Business School**
- Session Chair: Gareth Barnes (Aston University)
- 13:15 I7: *MR encephalography*
Jürgen Hennig (University of Freiburg, Germany)
- 13:45 O22: *Comparison of a single channel SQUID and MRI sensitivity for a calibrated loop source*
Martyn Paley, E. Krjukov, L.S. Chow (Department of Academic Radiology, University of Sheffield)
- 13:57 O23: *fMRI of the somatosensory cortex at 1 mm isotropic resolution*
Rosa Sanchez Panchuelo, D. Schluppeck, S. Francis, R. Bowtell (Sir Peter Mansfield Magnetic Resonance Centre, University of Nottingham)
- 14:09 O24: *Assessing the cerebral cortical response to oral fat in fat emulsions*
Sally Eldeghaidy, L. Marciani, T. Hollowood, K.E. Head, J. Hort, J. Bush, A. Taylor, R.C. Spiller, P.A. Gowland, S. Francis (Sir Peter Mansfield Magnetic Resonance Centre, University of Nottingham)
- 14:21 O25: *Magnetisation transfer ratio (MTR), T_1 and T_2 of globus pallidus in primary biliary cirrhosis (PBC) patients: correlation with fatigue impact score and autonomic dysfunction*
Kieran G. Hollingsworth, J.L. Newton, P.E. Thelwall, B.S. Aribasala, A.M. Blamire, R. Taylor, D.E. Jones (Newcastle Magnetic Resonance Centre, University of Newcastle)

- 14:33 Tea/coffee
- Session Chair: Zoe Kourtzi (University of Birmingham)
- 15:00 I8: *MR in neurodevelopment*
Mary Rutherford (University College London)
- 15:30 O26: *The use of post-mortem magnetic resonance imaging in the paediatric coronial post-mortem examination*
Elspeth Whittby, M. Paley, M.C. Cohen (Department of Academic Radiology, University of Sheffield)
- 15:42 O27: *Intermolecular zero-quantum coherence imaging in structured samples*
Bernard Siow, L.Sun, A. Blamire (Newcastle Magnetic Resonance Centre, University of Newcastle)
- 15:54 O28: *Extracting the long T_2 aliphatic and amide components of the Z-spectrum*
Penny Hubbard, J Närväinen, R.A. Kauppinen, G.A. Morris (Department of Chemistry, University of Manchester)
- 16:06 O29: *Magnetic targeting of stem cells to a site of vascular injury using an MRI contrast agent*
Panagiotis Kyrtatos, P. Lehtolainen, M.J. Ramirez, A.G. Prieto, T. Poulianitis, Q.A. Pankhurst, D.G. Gadian, M.F. Lyhtgoe (RCS Unit of Biophysics, University College London)
- 16:18 **Presentation of poster prizes and close of the meeting**
(Risto Kauppinen)

Poster presentations (odd numbers to be presented on Thursday, even on Friday)

- P1 *Combining Parallel Imaging with RF encoding: optimal sampling strategies*
R. G. Nunes, D. J. Larkman, P. Batchelor, D. Atkinson, J. V. Hajnal
Imaging Science Department, Imperial College, London
- P2 *Electromagnetic stimulation guided design of an optimised self-resonant HTS receive coil for 3T MRI*
Bobo Hu, I. Volkov, A. Alford, C. Randell, P. Glover
Sir Peter Mansfield Magnetic Resonance Centre, University of Nottingham
- P3 *A modular approach to MR compatible robotics: prostate biopsy robot*
Haytham Elhawary, A. Zivanovic, M. Rea, C. Besant, D. McRobbie, I. Young, N. de Souza, B. Davies, M. Lamperth
Department of Mechanical Engineering, Imperial College, London
- P4 *Intra- and inter-scanner variability of quantitative T_2 mapping at 3.0T: a multivendor study*
Sharon Balamoody, J C Waterton, R Hodgson, D L Buckley, S Zhao, M Scott, C E Hutchinson
Imaging Science and Biomedical Engineering, University of Manchester
- P5 *Reduction of Rician noise on magnetic resonance images*
Antonio DeStefano, A. Davis
Medical Physics, St Mary's Hospital, Portsmouth

- P6 *Parallel transmission (PxT): improved fidelity of localising excitation without explicit k-space undersampling*
Tunde Szilagy, D.J. Larkman, J.V. Hajnal
Imaging Science Department, Imperial College, London
- P7 *Getting past the pain barrier towards successful wrist imaging*
Lada Krasnosselskaia, A. Rastogi, N. Saeed, J.S. Angwin, M.H. Binks, M. Neetsha, X. Newell, P.C. Taylor, J.V. Hajnal
MRC Clinical Sciences Centre, Imperial College, London
- P8 *The effect of grey level normalisation and region size of texture analysis of MR images*
Daniel Tozer, P Tofts
Institute Neurology, University College London
- P9 *Improved analysis of functional stimulation by optical spectroscopy*
Martyn Paley, M. Smith, P. Ohadike, P. Griffiths, E. Whitby
Department of Academic Radiology, University of Sheffield
- P10 *Comparison of radial, asymmetric radial and Quarc trajectories for partial Fourier, short TE imaging*
Kuan Lee, J. Wild
Department of Academic Radiology, University of Sheffield
- P11 *Spatial effects in the localised detection of coupled metabolites in vivo*
Richard A.E. Edden, P. B. Barker
Schools of Biosciences and Chemistry, University of Cardiff
- P12 *Ketamine reduces prefrontal glutamine in rats reared in social isolation*
Antonio Napolitano, M.I. Schubert, M.V. Porkess, K. Fone, D. P. Auer
Division of Academic Radiology, University of Nottingham
- P13 *Accumulation of ¹H MRS visible lipids in rat glioma cells during cell death induced by cisplatin*
Ladan Mirbahai, M. Wilson, N. Spencer, C. McConville, A. Peet, R.A. Kauppinen
School of Sport and Exercise Sciences, University of Birmingham
- P14 *Application of independent component analysis for feature extraction and blind source separation on synthesized brain tumour ¹H magnetic resonance spectra*
Jie Hao, M. Wilson, N. Davies, A. Peet, T.N. Arvanitis
Department of Electronic, Electrical and Computer Engineering, University of Birmingham
- P15 *Breath-hold improves image registration of hyperpolarised ³He MRI to x-ray CT*
Rob H. Ireland, N. Woodhouse, N. Hoggart, J.A. Swinscoe, B.H. Foran, M.Q. Hatton, J.M. Wild
Department of Academic Radiology, University of Sheffield
- P16 *Pressure measurement from the diffusion coefficient of ³He gas*
Jim M. Wild
Department of Academic Radiology, University of Sheffield

- P17 *Preliminary results with hyperpolarised ^3He MRI at 3T*
Kevin Teh, K.J. Cooper, M. Clemence, N. de Zanche, J.M. Wild
Department of Academic Radiology, University of Sheffield
- P18 *Magnetic resonance imaging of abnormalities in diarrhoea-predominant irritable bowel syndrome: fasting and after bran-containing meal*
Luca Marciani, S. Foley, C.L. Hoad, J.J. Totman, E. Campbell, E. Cox, R.C. Spiller, P.A. Gowland
Wolfson Digestive Disease Centre, University of Nottingham
- P19 *Development of a flexible software phantom generator for DCE-MR imaging of abdominal tumours*
Anita Banerji, G. A. Buonaccorsi, G.J.M. Parker
Imaging Science and Biomedical Engineering, University of Manchester
- P20 *Characterisation of the blood flow response to an oral glucose challenge test meal of the superior mesenteric, aorta and internal carotid arteries*
J.J. Totman, L. Marciani, S. Foley, C.L. Hoad, E. Campbell, R.C. Spiller, P.A. Gowland
Sir Peter Mansfield Magnetic Resonance Centre, University of Nottingham
- P21 *Assessment of cortical pathology in multiple sclerosis using quantitative high-field MRI*
Klaus Schmierer, P.-W. So, S.F. An, D.H. Miller, T.A. Yousry, H.G. Parkes
Institute of Neurology, University College London
- P22 *In vivo MRS characterization of ANIT-induced hepatobiliary dysfunction*
Bhavana Solanky, G. Sanchez-Canon, S. Taylor-Robinson, J. Bell, J.C. Holder, J. Cox, P.-W. So
Imaging Sciences Department, Imperial College London
- P23 *Quantitative MR imaging in preoperative epilepsy patient with a cavernous haemangioma at 3.0T*
R.S. Samson, M.R. Symms, R. Cercigniani, M. Yagarajah, S. Ericson, J.S. Duncan
Institute of Neurology, University College London
- P24 *Automatic regional analysis of quantitative T_1 and T_2 mapping in the brain*
Benjamin Aribasala, J. He, P.E. Thelwall, K.G. Hollingsworth, A.M. Blamire
Newcastle Magnetic Resonance Centre, University of Newcastle
- P25 *Using gradient echo-spin echo sequence to measure T_2 in the brain at 3T and 7T*
Eleanor Cox, P.A. Gowland
Sir Peter Mansfield Magnetic Resonance Centre, University of Nottingham
- P26 *Post-mortem high field MRI of the midbrain at 9.4T: normal anatomy and qualitative comparison with progressive supranuclear palsy*
M.A. Miranda, L.A. Masey, H.G. Parkes, P.-W. So, T. Revesz, J. Holton, J. Thornton, A.J. Lees, T. Yousry
National for Neurology and Neurosurgery, Queen Square, London
- P27 *Autonomic dysfunction in primary biliary cirrhosis (PBC) is associated with structural brain abnormalities, particularly in globus pallidus*

- Kieran G. Hollingsworth, A.M. El-Sharkawy, Z.U.D.A. Khan, A.M. Blamire, R. Taylor, D.E. Jones, J.L. Newton
Newcastle Magnetic Resonance Centre, University of Newcastle
- P28 *Quantitative DCE-MRI as a screening tool in the preclinical assessment of anti-vascular agents*
Inna Linnik, S.R. Williams, K.E. Davies, A.T. McGown, J.A. Hadfield, D.L. Buckley
Imaging Science and Biomedical Engineering, University of Manchester
- P29 *Changes in T_2^* , T_1 and ASL perfusion estimates with carbogen breathing and DCE-MRI comparison in a subcutaneous rat tumour model*
John P. Carr, J. Tessier, D. Bradley, D.L. Buckley, G.J.M. Parker
Imaging Science and Biomedical Engineering, University of Manchester
- P30 *About 'axial' and 'radial' diffusivity*
Claudia A.M. Wheeler-Kingshott, M. Cercignani
Institute of Neurology, University College London
- P31 *Looking for an optimal DT-MRI acquisition scheme: how many directions and b-values?*
Marta M. Correia, G. B. Williams
Wolfson Brain Imaging Centre, University of Cambridge
- P32 *Principal Eigenvector coherence: dependence on b-value range in DTI*
Ai Wern Chung, P.G. Batchelor, C.A. Clark
Radiology and Physics, University of College London
- P33 *Correcting artifacts in high temporal and spatial resolution dynamic abdominal studies using UNFOLD: A potential tool for improving perfusion quantification DCE-MRI investigations*
Keiko Miyazaki, J.A. d'Arcy, D. Hawkes, D. Atkinson, M.O. Leach, D. Collins
Institute of Cancer Research, Sutton
- P34 *Rapid blood T_1 calibration for arterial spin labeling*
Marta Varela, J.V. Hajnal, D.J. Larkman
Imaging Sciences Department, Imperial College London
- P35 *Definitions of enhancement for DCE-MRI drug trials*
Chris J. Rose, G.A. Buonocorsi, S. Cheoug, J.P. O'Connor, C. Roberts, Y. Watson, P. Whitcher, G.J. Parker
Image Science and Biomedical Engineering, University of Manchester
- P36 *A comparative study of different image analysis packages for processing of fMRI data*
Carol Docherty, K Mueller, J Neuman, J. Lepsien, D.Y. von Cramon, R. Turner, G. Lohmann
Max Planck Institute for Cognitive and Brain Sciences, Leipzig, Germany
- P37 *Safety of localizing intracranial EEG electrodes using MRI: A comparison between head and body coils at 3T*
David W. Carmichael, J.S. Thornton, P.J. Allen, J. Lemieux
Institute of Neurology, University College London
- P38 *Effects of the TMS coil on MR image quality in combined TMS/fMRI*
Andreas Bungert, R. Bowtell
Sir Peter Mansfield Magnetic Resonance Centre, University of Nottingham

- P39 *Reproducibility of BOLD and perfusion data during visual, motor, and hypercapnia experiments at 3T*
Jonathan A. Goodwin, L.M. Parkes
Magnetic Resonance and Image Analysis Research Centre, University of Liverpool
- P40 *An fMRI study on the effects of midazolam sedation on brain activity*
C. Alexakis, Q. Siddiqui, A. Diukova, C. Stewart, J. Hlinka, J Harman, D.P. Auer
Division of Academic Radiology, University of Nottingham
- P41 *Developing of a functional phantom for a use in quality control and testing imaging sequences for fMRI*
Lei Jiang, R. Coxon, P.A. Gowland, R. Bowtell
Sir Peter Mansfield Magnetic Resonance Research Centre, University of Nottingham
- P42 *Comparison of BOLD and direct-MR neuronal detection (DND) using block paradigm stimuli*
L.S. Chow, Y. Fu, A. Dagens, G.D. Cook, M. N. Paley
Department of Academic Radiology, University of Sheffield
- P43 *Task switching at 7T: Correlation of single trial BOLD with switch cost*
Peter J. Wright, N. Pertidoul, P. Liddle, P. Gowland, S. Francis
Sir Peter Mansfield Magnetic Resonance Centre, University of Nottingham
- P44 *Comparison of BOLD, gray matter nulled and VASO fMRI signals in human visual cortex*
Yuji Shen, R.A. Kauppinen
School of Sport and Exercise Sciences, University of Birmingham
- P45 *Functional magnetic resonance imaging of the motor networks with 65 ms time resolution*
Z Nagy, C. Hutton, N. Weiskopf, R. Deichmann
Wellcome Trust Centre for Neuroimaging, University College London
- P46 *Magnetic resonance imaging of the neonate – ultra fast or standard imaging?*
Elspeth Whitby, R. Battey, M Paley, P Griffiths, D Connelly
Department of Academic Radiology, University of Sheffield
- P47 *Fat infiltration in Duchenne muscular dystrophy; Quantification on T1-weighted images for steroid treated DMD boys and control subjects*
P Garrod, K.G. Hollingsworth, P.E. Thelwall, D. Birchall, K. Bushby, V. Straub
Institute for Human Genetics, University of Newcastle
- P48 *Evaluation of a ferromagnetic object detection system for MRI patient screening*
Gail Darwent, I. Weatherstone, E. Kruijkov, M. Paley
Department of Academic Radiology, University of Sheffield
- P49 *When should SNR measured in a multi-centre study? Preliminary results from Calibrain*
Katherine Lymer, E. Gountouna, I Gerrish, I Marshall, A. McIntosh, S. Lawrie
Division of Psychiatry, University of Edinburgh
- P50 *Quality assurance protocol for calibrain: Multicentre structural and functional and MRI in Scotland*

- Katherine Lymer, E. Gountouna, I Marshall, G. Waiter, D. Brennan, J. Best, J. Cavanagh, S. Lawrie
Division of Psychiatry, University of Edinburgh
- P51 *Impact of inconsistent resolution on VBM studies*
Joao M.S. Pereira, P.J. Nestor, G.B. Williams
Wolfson Brain Imaging Centre, University of Cambridge
- P52 *Investigating the magnetic resonance properties of tissue using ethanol MRI and MRS*
Marc O'Brien, D. McIntyre, M. Basetti, L. Rodrigues, J. Griffiths
CRUK Cambridge Research Institute, University of Cambridge
- P53 *Ventricular mass index measured from MRI correlates with pulmonary artery pressure in patients with systemic sclerosis and suspected pulmonary artery hypertension*
Dan Hagger, N. Woodhouse, C.A. Elliot, I. Armstrong, C. Hill, C. Davies, J.M. Wild, D.G. Kiely
Department of Academic Radiology, University of Sheffield
- P54 *T₁ mapping using MP_RAGE sequence*
Olivier Mougín, P Gowland
Sir Peter Mansfield Magnetic Resonance Centre, University of Nottingham
- P55 *General solutions for the N-pool Bloch equations*
Penny Hubbard, D.C. Williamson, J. Narvainen, C. Cooke, R.A. Kauppinen, G.A. Morris
Department of Chemistry, University of Manchester