Magnetic particle imaging is a novel imaging modality which uses various static and oscillating magnetic fields, as well as tracer materials made from iron oxide nanoparticles to perform background-free measurements of the particles’ local concentration. The method exploits the non-linear remagnetization behavior of the particles and has the potential to surpass current methods for the detection of iron oxide in sensitivity and spatio-temporal resolution.

This volume is a collection of the accepted contributions of the Second International Workshop on Magnetic Particle Imaging (IWMPI 2012) held at the University of Lübeck, Germany on March 15-16, 2012. The workshop has been organized locally by Medisert, the technology transfer platform of the University of Lübeck, and the Institute of Medical Engineering.

The workshop proceedings cover the status and recent developments in theory and both, instrumentation and tracer materials, as each of them is equally important in designing a well performing MPI. Furthermore, the book aims at presenting first results from phantom and pre-clinical studies.

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Contents

Modelling and Simulation Theory

Characterization of Resovist® Nanoparticles for Magnetic Particle Imaging .................................................... 3
Takashi Yoshida, Keiji Enpuku, Frank Ludwig, Jan Dieckhoff, Thilo Wawrzik, Aidin Lak, Meinhard Schilling

Nonlinear Behavior of Magnetic Fluid in Brownian Relaxation:
Numerical Simulation and Derivation of Empirical Model .............. 9
Takashi Yoshida, Keiji Enpuku

Magnetic Particle Imaging Using Ferromagnetic Magnetization ........ 15
Stephan Euting, Fernando M. Araújo-Moreira, Waldemar Zylka

Magnetic Particle Imaging: Exploring Particle Mobility ................ 21
Thilo Wawrzik, Frank Ludwig, Meinhard Schilling

System Calibration Unit for Magnetic Particle Imaging: Focus Field
Based System Function ........................................ 27
Aleksi Halkola, Thorsten Buzug, Jürgen Rahmer, Bernhard Gleich,
Claas Bontus

Spectroscopy

Characterization of Magnetic Nanoparticles for Magnetic Particle Imaging by Magnetorelaxometry, AC Susceptibility, Magnetic Particle Spectroscopy and Static Magnetization Measurements ......................... 35
Frank Ludwig, Thilo Wawrzik, Meinhard Schilling

Perspectives of Magnetic Particle Spectroscopy for Magnetic
Nanoparticle Characterization ........................................ 41
Thilo Wawrzik, Meinhard Schilling, Frank Ludwig
Initial MPS Response of Adsorptively-Coated Fluorescent Iron Oxide Nanoparticles .................................................. 47
Jabadurai Jayapaul, Daniel Truhn, Fabian Kiessling, Kerstin Lüdtke-Buzug, Thorsten M. Buzug

Evaluation of Different Magnetic Particle Systems with Respect to Its MPI Performance ............................................ 53
Dietmar Eberbeck, Lutz Trahms, Harald Kratz

Determination of System Functions for Magnetic Particle Imaging ...... 59
Matthias Graeser, Sven Biederer, Mandy Grüttner, Hanne Wojtczyk, Timo F. Sattel, Wiebke Tenner, Gael Bringout, Thorsten M. Buzug

Magnetic Particle Separation

Microfluidic System as a Tool for Magnetic Separation of Human Cells with Diagnostic Relevance ..................... 67

Potential of Improving MPI Performance by Magnetic Separation ...... 73
N. Löwa, D. Eberbeck, U. Steinhoff, F. Wiekhorst, L. Trahms

Magnetic Nanoparticles

Fractionated Magnetic Multicore Nanoparticles for Magnetic Particle Imaging .................................................. 81
Silvio Dutz, Dietmar Eberbeck, Robert Müller, Matthias Zeisberger

Precision Synthesis of Iron Oxide Nanoparticles and Their Use as Contrast Agents ................................................ 87
Jan Niehaus, Sören Becker, Christian Schmidtke, Katja Werner, Horst Weller

Synthesis of Single-Core Iron Oxide Nanoparticles as a Tracer for Magnetic Particle Imaging ................................. 93
Aidin Lak, Thilo Wawrzik, Frank Ludwig, Meinhard Schilling

New Perspectives for MPI: A Toolbox for Tracer Research ............ 99
Nicole Gehrke, Andreas Briel, Frank Ludwig, Hilke Remmer, Thilo Wawrzik, Stefan Wellert

Superparamagnetic Iron Oxide Nanoparticles: Evaluation of Stability of SPIONs in Different Milieu for Magnetic Particle Imaging ................................. 105
Kerstin Lüdtke-Buzug, Céline Borchers
Contents

3D Semi-quantification of Nanoparticle Content in Tissue on Experimental and Commercial μCT-Scanner .......................... 111
Helene Rahn, Katharina Bayer, Stefan Odenbach, Stefan Lyer, Christoph Alexiou, Frank Wiekhorst, Lutz Trahms, Michael Baumann, Julia Buckwar, Mechthild Krause

Biomaterials for Regenerative Medicine: Cytotoxicity of Superparamagnetic Iron Oxide Nanoparticles in Stem Cells ................. 117
D. Schneider, K. Lüdtke-Buzug

Tracer Development for Magnetic Particle Imaging ...................... 123
Harald Kratz, Dietmar Eberbeck, Susanne Wagner, Jörg Schnorr, Matthias Taupitz

The Potential of Magnetic Particle Imaging in the Competitive Environment of Cardiac Diagnostics ................................ 129
Gunnar Schütz

Iron Oxide Nanoparticles – Tracer for Magnetic Particle Imaging ....... 135
Ulrich Pison, Cordula Grüttnner, Fritz Westphal, Barbara Kleiner, Nicole Barthel, Katharina Roepke

Magnetic Particle Imaging Theory

Experimental Evaluation of Correlation-Based Image Reconstruction Method for Magnetic Particle Imaging ......................... 143
Takumi Honma, Yasutoshi Ishihara

Relaxation in x-space Magnetic Particle Imaging .......................... 149
Laura R. Croft, Patrick Goodwill, Matt Ferguson, Kannan Krishnan, Steven Conolly

Linear and Shift Invariance of Magnetic Particle Imaging ............... 155
Kuan Lu, Patrick Goodwill, Steve Conolly

Efficient Positioning of the Field-Free Point in Magnetic Particle Imaging ......................................................... 161
Tobias Knopp, Timo F. Sattel, Thorsten M. Buzug

Visualization of Instruments in Interventional Magnetic Particle Imaging (iMPI): A Simulation Study on SPIO Labelings .................. 167
Hanne Wojtczyk, Julian Haegele, Mandy Grüttnner, Wiebke Tenner, Gael Bringout, Matthias Graeser, Florian M. Vogt, Jörg Barkhausen, Thorsten M. Buzug
Medical Applications

Red Blood Cells as Magnetic Carriers for MPI Applications ............ 175
A. Antonelli, C. Sfara, M. Magnani, J. Rahmer, B. Gleich, J. Borgert, J. Weizenecker

Ex Vivo Magnetic Sentinel Lymph Node Detection in Colorectal Cancer with a SPIO Tracer .......................................................... 181
Joost J. Pouw, Raluca M. Fratila, Aldrik H. Velders, Bennie ten Haken, Quentin A. Pankhurst, Joost M. Klaase

Distribution of Superparamagnetic Nanoparticles in Lymphatic Tissue for Sentinel Lymph Node Detection in Breast Cancer by Magnetic Particle Imaging ....................................................... 187
Dominique Finas, Kristin Baumann, Katja Heinrich, Britta Ruhland, Lotta Sydow, Ksenija Gräfe, Timo Sattel, Kerstin Lüdtke-Buzug, Thorsten Buzug

Behavior of Superparamagnetic Iron Oxides in Magnetic Targeting Models ............................................ 193
Ioana Slabu, Anjali Roeth, Gernot Güntherodt, Thomas Schmitz-Rode, Martin Baumann

Diagnostic Imaging in Cancer Therapy with Magnetic Nanoparticles .... 199
Stefan Lyer, Rainer Tietze, Stephan Dürr, Tobias Struffert, Tobias Engelhorn, Marc Schwarz, Arnd Dörfler, Lubos Budinsky, Andreas Hess, Wolfgang Schmidt, Roland Jurgons, Christoph Alexiou

Engineering Contrast Agents for Gastro-Intestinal Magnetic Particle Imaging: The Biological Perspective ................................. 205
Katrin Ramaker, Niels Röckendorf, Andreas Frey

Visualization of Instruments for Cardiovascular Intervention Using MPI .............................................................. 211
Julian Haegel, Jürgen Rahmer, Bernhard Gleich, Claas Bontus, Jörn Borgert, Hanne Wojtczyk, Thorsten M. Buzug, Jörg Barkhausen, Florian M. Vogt

Efficient Encoding Methods for Small Numbers of Pixels to Achieve High Sensitivity for Screening ............................................ 217
John B. Weaver
Magnetic Particle Imaging

Influence of Magnetic Field Optimization on Image Quality Achieved for Efficient Radon-Based Reconstruction in Field Free Line Imaging in MPI .......................................................... 225
Marlitt Erbe, Tobias Knopp, Timo F. Sattel, Thorsten M. Buzug

Slicing Frequency Mixed Traveling Wave for 3D Magnetic Particle Imaging .................................................. 231
P. Vogel, M.A. Rückert, P. Klauer, W.H. Kullmann, P.M. Jakob, V.C. Behr

Magnetic-Particle-Imaging for Sentinel Lymph Node Biopsy in Breast Cancer .................................................. 237
Ksenija Gräfe, Timo F. Sattel, Kerstin Lüdtke-Buzug, Dominique Finas, Jörn Borgert, Thorsten M. Buzug

Experimental 3D X-Space Magnetic Particle Imaging Using Projection Reconstruction ........................................ 243
Justin Konkle, Patrick Goodwill, Oscar Carrasco-Zevallos, Steven Conolly

Enlarging the Field of View in Magnetic Particle Imaging – A Comparison .................................................. 249
Mandy Grütter, Timo F. Sattel, Matthias Graeser, Hanne Wojtczyk, Gael Bringout, Wiebke Tenner, Thorsten M. Buzug

Continuous Focus Field Variation for Extending the Imaging Range in 3D MPI .......................................................... 255

Third Generation X-space MPI Mouse and Rat Scanner ................. 261
Patrick Goodwill, Laura Croft, Justin Konkle, Kuan Lu, Emine Saritas, Bo Zheng, Steven Conolly

Projection X-Space MPI Mouse Scanner .......................... 267
Patrick Goodwill, Justin Konkle, Bo Zheng, Steven Conolly

Magnetic Particle Theory

Reconstruction of Magnetization Curve Using Magnetic Spectroscopy ... 275
Iulian Teliban, Steffen Chemnitz, Claas Thede, Christoph Bechtold, Babak Mozooni, Eckhard Quandt, Hans-Joachim Krause
Multiferroic Behavior of BTO-Nanoparticles .......................... 281
Steffen Trimper, Safa Golrokh Bahoosh, Julia M. Wesselinowa

Point Spread Function Analysis of Magnetic Particles ................. 287
Ingo Schmale, Jürgen Rahmer, Bernhard Gleich, Jörn Borgert, Jürgen Weizenecker

Magneto-Relaxometry

Spatially Resolved Measurement of Magnetic Nanoparticles Using Inhomogeneous Excitation Fields in the Linear Susceptibility Range (<1mT) ...................................................... 295
Uwe Steinhoff, Maik Liebl, Martin Bauer, Frank Wiekhorst, Lutz Trahms, Daniel Baumgarten, Jens Haueisen

Magnetorelaxometry for In-Vivo Quantification of Magnetic Nanoparticle Distributions after Magnetic Drug Targeting in a Rabbit Carcinoma Model ............................................ 301
Frank Wiekhorst, Maik Liebl, Uwe Steinhoff, Lutz Trahms, Stefan Lyer, Stephan Dürr, Christoph Alexiou

Imaging Technology and Safety Aspects

A Control Unit for a Magnetic Particle Spectrometer .................... 309
R. Marquina-Sanchez, S. Kaufmann, M. Ryschka, T.F. Sattel, T.M. Buzug

Optimization of Circular Current Distributions for Magnetic Field Generation in MPI: A Comparison of the Selection Field Coil and the Drive Field Coil Geometry ........................................ 313
Timo F. Sattel, Marlitt Erbe, Thorsten M. Buzug

Capacitor Distortion in Magnetic Particle Imaging .......................... 319
Bo Zheng, Patrick Goodwill, Wisely Yang, Steven Conolly

Safety Limits for Human-Size Magnetic Particle Imaging Systems ...... 325
Emine U. Saritas, Patrick W. Goodwill, George Z. Zhang, Wenxiao Yu, Steven M. Conolly

Mouse Bed Optimized for MPI ........................................ 331
Matthias Weber, Patrick Goodwill, Steven Conolly

Transmembrane Voltages Caused by Magnetic Fields – Numerical Study of Schematic Cell Models .......................................... 337
Alexander Kramlich, Julia Bohnert, Olaf Dössel
Concept for a Modular Class-D Amplifier for MPI Drive Field Coils ...... 343
Jonas Jockram, Oliver Woywode, Bernhard Gleich, Klaus Hoffmann

A Hybrid Filter Topology for a Reduction of High Frequency
Harmonics .......................................................... 349
J. Bergmann, K.F. Hoffmann, B. Gleich, O. Woywode

Safety Aspects for a Pre-clinical Magnetic Particle Imaging Scanner ...... 355
Gael Bringout, Hanne Wojtczyk, Mandy Grüttnner, Matthias Graeser,
Wiebke Tenner, Julian Hägele, Florian M. Vogt, Jörg Barkhausen,
Thorsten M. Buzug

Short Contributions

Citrate-Coated Magnetite Nanoparticles Are Highly Efficient Agents for
Magnetic Labeling of Human Mesenchymal Stem Cells .................. 363
Kristin Andreas, Jochen Ringe, Michael Sittinger, Norbert Buske

Dendronized Iron Oxides as Smart Nano-objects for Multimodal
Imaging ............................................................. 365
B. Basly, G. Popa, A. Garofalo, D. Felder-Flesch, S. Begin-Colin,
C. Billotey

Superparamagnetic Dextran Coated Iron Oxide Nanoparticles (SPIO)
as Potential Markers for Tumor Cell Detection ......................... 367
R. Pries, K. Lüdtke-Buzug, A. Lindemann, B. Hüsing, T.M. Buzug,
B. Wollenberg

Low Field NMR as a Tool for Neuronal Current Detection: A Feasibility
Study in a Phantom .................................................. 369
Rainer Körber, Nora Höfner, Martin Burghoff, Lutz Trahms,
Jens Haueisen, Sven Martens, Gabriel Curio

Low Field Nuclear Magnetic Relaxation of Water and Brain Tissue ...... 371
Stefan Hartwig, Hans-Helge Albrecht, Nora Höfner, Ingo Hilschenz,
Rainer Körber, Hans-Jürgen Scheer, Jens Voigt, Martin Burghoff,
Lutz Trahms

In Vivo Biodistribution and Pharmacokinetics of Optimized Magnetic
Particle Imaging Tracers .............................................. 373
Amit P. Khandhar, R. Matthew Ferguson, Kannan M. Krishnan

Imaging with Optimized Magnetite MPI Tracers ........................ 375
R. Matthew Ferguson, Amit P. Khandhar, Patrick W. Goodwill,
Steven M. Conolly, Kannan M. Krishnan
A Magnetometer Cooled with Liquid Nitrogen for the Characterization and Quantification of Magnetic Nanoparticles in Biological Samples at Room Temperature ................................................. 377
Martijn Visscher, Matthias Holling, Joost Pouw, Bennie ten Haken

Uniform Magnetite Nanoparticles Larger Than 20 nm Synthesized by an Aqueous Route ......................................................... 379
Sabino Veintemillas-Verdaguer, María del Puerto Morales, Carlos J. Serna, Manuel Andrés-Vergés, Jesús Ruiz-Cabello, Fernando Herranz

Author Index ................................................................. 381