

Publikationsliste – Tobias Knopp

Bücher (3)

- [1] T. M. Buzug, S. Biederer, J. Borgert, M. Erbe, T. Knopp, K. Lüdtke-Buzug, and T. F. Sattel, editors. *1st International Workshop on Magnetic Particle Imaging (IWMPI 2010) - Book of Abstracts*. Verlags- und Druckhaus Max Schmidt-Römhild KG, Lübeck, 2010.
- [2] T. M. Buzug, J. Borgert, T. Knopp, S. Biederer, T. F. Sattel, M. Erbe, and K. Lüdtke-Buzug, editors. *Magnetic Nanoparticles: Particle Science, Imaging Technology, and Clinical Applications*. World Scientific Publishing Company, Singapore, 2010.
- [3] T. Knopp. *Effiziente Rekonstruktion und alternative Spulentopologien für Magnetic-Particle-Imaging*. Vieweg+Teubner, 2011.

Zeitschriftenartikel (13)

- [4] T. Knopp, S. Kunis, and D. Potts. A note on the iterative MRI reconstruction from nonuniform k-space data. *Int. J. Biomed. Imaging*, 2007:Article ID 24727, 9 pages, 2007.
- [5] H. Eggers, T. Knopp, and D. Potts. Field inhomogeneity correction based on gridding reconstruction for magnetic resonance imaging. *IEEE Trans. Med. Imag.*, 26:374 – 384, 2007.
- [6] T. Knopp, H. Eggers, H. Dahnke, J. Prestin, and J. Sénégas. Iterative off-resonance and signal decay correction for improved multi-echo imaging in MRI. *IEEE Trans. Med. Imaging*, 28(3):394–404, 2009.
- [7] T. F. Sattel, T. Knopp, S. Biederer, B. Gleich, J. Weizenecker, J. Borgert, and T. M. Buzug. Single-sided device for magnetic particle imaging. *J. Phys. D: Appl. Phys.*, 42(1):1–5, 2009.
- [8] T. Knopp, S. Biederer, T. Sattel, J. Weizenecker, B. Gleich, J. Borgert, and T. M. Buzug. Trajectory analysis for magnetic particle imaging. *Phys. Med. Biol.*, 54(2):385–397, Jan. 2009.
- [9] S. Biederer, T. Knopp, T. F. Sattel, K. Lüdtke-Buzug, B. Gleich, J. Weizenecker, J. Borgert, and T. M. Buzug. Magnetization response spectroscopy of superparamagnetic nanoparticles for magnetic particle imaging. *J. Phys. D: Appl. Phys.*, 42(20):7pp, 2009.
- [10] T. Knopp, T. F. Sattel, S. Biederer, J. Rahmer, J. Weizenecker, B. Gleich, J. Borgert, and T. M. Buzug. Model-based reconstruction for magnetic particle imaging. *IEEE Trans. Med. Imaging*, 29(1):12–18, 2010.
- [11] T. Knopp, T. F. Sattel, S. Biederer, and T. M. Buzug. Field-free line formation in a magnetic field. *J. Phys. A: Math. Theor.*, 43(1):9pp, 2010.
- [12] T. Knopp, S. Biederer, T. F. Sattel, J. Rahmer, J. Weizenecker, B. Gleich, J. Borgert, and T. M. Buzug. 2D model-based reconstruction for magnetic particle imaging. *Med. Phys.*, 37(2):485–491, 2010.
- [13] T. Knopp, J. Rahmer, T. F. Sattel, S. Biederer, J. Weizenecker, B. Gleich, J. Borgert, and T. M. Buzug. Weighted iterative reconstruction for magnetic particle imaging. *Phys. Med. Biol.*, 55(8):1577–1589, 2010.

- [14] T. Knopp, M. Erbe, S. Biederer, T. F. Sattel, and T. M. Buzug. Efficient generation of a magnetic field-free line. *Med. Phys.*, 37(7):3538–3540, 2010.
- [15] T. Knopp, M. Erbe, T. F. Sattel, S. Biederer, and T. M. Buzug. Generation of a static magnetic field-free line using two maxwell coil pairs. *Appl. Phys. Lett.*, 97:092505–1–092505–3, 2010.
- [16] T. Knopp, S. Biederer, T. F. Sattel, M. Erbe, and T. M. Buzug. Prediction of the spatial resolution of magnetic particle imaging using the modulation transfer function of the imaging process. *IEEE Trans. Med. Imaging*, 2011, accepted.

Konferenzbeiträge (48)

- [17] J. S en egas, T. Knopp, and H. Eggers. dSENSE: Direct k-space reconstruction for non-cartesian parallel MRI. In *Proc. ISMRM 15th Scientific Meeting*, page 227, 2006.
- [18] H. Eggers, T. Knopp, and D. Potts. Field inhomogeneity correction based on gridding reconstruction. In *Proc. ISMRM 15th Scientific Meeting*, page 2969, 2006.
- [19] H. Eggers, T. Knopp, and D. Potts. Fast fourier transform for nonequispaced data with applications in MRI. In *Jahrestagung der Deutschen Sektion der ISMRM*, 2006.
- [20] S. Kunis, T. Knopp, and D. Potts. Inverse nonequispaced FFT - applications in MRI and numerical stability. In *Jahrestagung der Deutschen Sektion der ISMRM*, 2006.
- [21] J. S en egas, T. Knopp, and H. Eggers. Simultaneous estimation and correction of main field inhomogeneity. In *Proc. ISMRM-ESMRMB 16th Scientific Meeting*, 2007.
- [22] J. S en egas, T. Knopp, and H. Dahnke. Dealing with spatially varying noise in T2* mapping with SENSE. In *Proc. ISMRM-ESMRMB 16th Scientific Meeting*, 2007.
- [23] T. Knopp, H. Dahnke, H. Eggers, and J. S en egas. An iterative off-resonance and signal decay correction for improved R2* mapping. In *Proc. ISMRM-ESMRMB 16th Scientific Meeting*, 2007.
- [24] B. Kratz, T. Knopp, J. M uller, M. Oehler, and T. M. Buzug. Comparison of nonequispaced fourier transform and polynomial based metal artifact reduction methods in computed tomography. In *Bildverarbeitung f ur die Medizin*, Berlin, Mai 2008. Springer.
- [25] M. Oehler, B. Kratz, J. M uller, T. Knopp, and T. M. Buzug. Evaluation of surrogate data quality in sinogram-based CT metal-artefact reduction. In *SPIE Optics + Photonics*, volume 7076-4, 2008.
- [26] B. Kratz, M. Oehler, T. Knopp, S. Ens, and T. M. Buzug. CT-MAR-reconstruction using non-uniform Fourier transform. In *Proc. 4th European Congress for Medical and Biomedical Engineering, Springer IFMBE Series*, volume 22, pages 861–865, 2008.
- [27] S. Biederer, T. Sattel, T. Knopp, K. L udtke-Buzug, B. Gleich, J. Weizenecker, J. Borgert, and T. M. Buzug. A spectrometer for magnetic particle imaging. In *Proc. 4th European Congress for Medical and Biomedical Engineering, Springer IFMBE Series*, volume 22, pages 2313–2316, 2008.
- [28] T. Knopp, S. Biederer, T. Sattel, and T. M. Buzug. Singular value analysis for magnetic particle imaging. In *Proc. IEEE Nuc. Sci. Symp. Med. Im. Conf.*, pages 4525–4529, 2008.

- [29] T. Knopp, T. Sattel, S. Biederer, J. Weizenecker, B. Gleich, J. Borgert, and T. M. Buzug. Trajektoriendichte bei Magnetic Particle Imaging. In *Bildverarbeitung für die Medizin*, pages 71–75, 2009.
- [30] T. F. Sattel, S. Biederer, T. Knopp, K. Lüdtke-Buzug, B. Gleich, J. Weizenecker, J. Borgert, and T. M. Buzug. Single-sided coil configuration for magnetic particle imaging. In *World Congress on Medical Physics and Biomedical Engineering, Springer IFMBE Series*, volume 25/VII, pages 281–284, Munich, September 2009.
- [31] T. F. Sattel, S. Biederer, T. Knopp, K. Lüdtke-Buzug, B. Gleich, J. Borgert, and T. M. Buzug. Hand-held concept of a magnetic particle imaging device. In *World Molecular Imaging Congress*, Montreal, September 2009.
- [32] S. Biederer, T. Knopp, T. F. Sattel, K. Lüdtke-Buzug, B. Gleich, J. Weizenecker, J. Borgert, and T. M. Buzug. Estimation of magnetic nanoparticle diameter with a magnetic particle spectrometer. In *World Congress on Medical Physics and Biomedical Engineering, Springer IFMBE Series*, volume 25/VIII, pages 61–64, Munich, September 2009.
- [33] S. Biederer, T. F. Sattel, T. Knopp, K. Lüdtke-Buzug, B. Gleich, J. Weizenecker, J. Borgert, and T. M. Buzug. The influence of the particle-size distribution on the image resolution in magnetic particle imaging. In *Proc. ESMRMB*, volume 22, page 499, Antalya, October 2009.
- [34] S. Biederer, F. M. Vogt, K. Lüdtke-Buzug, T. Knopp, T. F. Sattel, J. Barkhausen, and T. M. Buzug. A study on the performance of different superparamagnetic iron oxide particles in magnetic particle imaging. In *Proc. ESMRMB*, volume 22, page 709, Antalya, October 2009.
- [35] T. Knopp, T. F. Sattel, S. Biederer, and T. M. Buzug. Limitations of measurement-based system functions in magnetic particle imaging. In *SPIE Medical Imaging*, San Diego, February 2010.
- [36] T. Knopp, S. Biederer, T. F. Sattel, J. Weizenecker, B. Gleich, J. Borgert, and T. M. Buzug. Rekonstruktion von Magnetic Particle Imaging Daten mittels einer modellierten Systemfunktion. In *Bildverarbeitung für die Medizin*, pages 1–5, 2010.
- [37] T. Knopp, S. Biederer, T. F. Sattel, K. Lüdtke-Buzug, M. Erbe, and T. M. Buzug. Efficient field-free line generation for magnetic particle imaging. In *International Workshop on Magnetic Particle Imaging BoA*, volume 1, page 26, 2010.
- [38] T. Knopp, M. Erbe, T. F. Sattel, S. Biederer, and T. M. Buzug. Efficient generation of a magnetic field-free line. In *Proc. ISMRM*, page 952, Stockholm, Mai 2010.
- [39] S. Biederer, T. F. Sattel, T. Knopp, and T. M. Buzug. Variable Trajektoriendichte in Magnetic Particle Imaging. In *Bildverarbeitung für die Medizin*, pages 6–10, Aachen, Springer, 2010.
- [40] S. Biederer, T. Knopp, T. F. Sattel, M. Erbe, and T. M. Buzug. Improved estimation of the magnetic nanoparticle diameter with a magnetic particle spectrometer and combined fields. In *Proc. ISMRM*, page 954, Stockholm, Mai 2010.
- [41] S. Biederer, T. F. Sattel, T. Knopp, M. Erbe, and T. M. Buzug. Improving the imaging quality in magnetic particle imaging by a traveling phase trajectory. In *Proc. ISMRM*, page 3296, Stockholm, Mai 2010.

- [42] S. Biederer, T. F. Sattel, T. Knopp, M. Erbe, K. Lüdtke-Buzug, F. M. Vogt, J. Barkhausen, and T. M. Buzug. A spectrometer to measure the usability of nanoparticles for magnetic particle imaging. In *International Workshop on Magnetic Particle Imaging BoA*, volume 1, page 20, 2010.
- [43] T. F. Sattel, T. Knopp, S. Biederer, and T. M. Buzug. Open coil arrangement for interventional magnetic particle imaging. In *Proc. ISMRM*, page 945, Stockholm, Mai 2010.
- [44] T. F. Sattel, S. Biederer, T. Knopp, and T. M. Buzug. Magnetic field generation for multi-dimensional single-sided magnetic particle imaging. In *Proc. ISMRM*, page 3297, Stockholm, Mai 2010.
- [45] T. F. Sattel, T. Knopp, S. Biederer, M. Erbe, K. Lüdtke-Buzug, and T. M. Buzug. Resolution distribution in single-sided magnetic particle imaging. In *International Workshop on Magnetic Particle Imaging BoA*, volume 1, page 24, 2010.
- [46] B. Ruhland, K. Baumann, T. Knopp, T. F. Sattel, S. Biederer, K. Lüdtke-Buzug, T. M. Buzug, K. Diedrich, and D. Finas. Magnetic Particle Imaging durch Superparamagnetische Nanopartikel zur Sentinellymphknotendetektion beim Mammakarzinom. In *XXI. Akademische Tagung deutschsprechender Hochschullehrer in der Gynäkologie und Geburtshilfe*, Innsbruck, September 2009.
- [47] D. Finas, B. Ruhland, K. Baumann, T. Knopp, T. F. Sattel, S. Biederer, K. Lüdtke-Buzug, T. M. Buzug, and K. Diedrich. Sentinel lymphnode detection in breast cancer by magnetic particle imaging using superparamagnetic nanoparticles. In *International Workshop on Magnetic Particle Imaging BoA*, volume 1, page 35, 2010.
- [48] T. M. Buzug, S. Biederer, T. Knopp, T. F. Sattel, and K. Lüdtke-Buzug. Magnetic particle imaging – challenges and promises of a new modality. In *World Congress on Medical Physics and Biomedical Engineering, Springer IFMBE Series*, volume 25/IV, pages 1471–1474, Munich, September 2009.
- [49] K. Lüdtke-Buzug, S. Biederer, T. Sattel, T. Knopp, and T. M. Buzug. Preparation and characterization of dextran-covered Fe_3O_4 nanoparticles for magnetic particle imaging. In *4th European Conference of the International Federation for Medical and Biological Engineering*, volume 22, pages 2343–2346, Antwerpen, November 2008.
- [50] K. Lüdtke-Buzug, S. Biederer, T. F. Sattel, T. Knopp, and T. M. Buzug. Particle-size distribution of dextran- and carboxydextran-coated superparamagnetic nanoparticles for magnetic particle imaging. In *World Congress on Medical Physics and Biomedical Engineering, Springer IFMBE Series*, volume 25/VIII, pages 226–229, Munich, September 2009.
- [51] K. Lüdtke-Buzug, S. Biederer, T. F. Sattel, T. Knopp, and T. M. Buzug. Synthesis and spectroscopic analysis of super-paramagnetic nanoparticles for magnetic particle imaging. In *World Molecular Imaging Congress*, Montreal, September 2009.
- [52] K. Lüdtke-Buzug, S. Biederer, M. Erbe, T. Knopp, T. F. Sattel, and T. M. Buzug. Superparamagnetic iron oxide nanoparticles for magnetic particle imaging. In *International Workshop on Magnetic Particle Imaging BoA*, volume 1, page 2, 2010.

- [53] F. M. Vogt, J. Barkhausen, S. Biederer, T. F. Sattel, T. Knopp, K. Lüdtke-Buzug, and T. M. Buzug. Current iron oxide nanoparticles - impact on MRI and MPI. In *International Workshop on Magnetic Particle Imaging BoA*, volume 1, page 12, 2010.
- [54] S. Kaufmann, S. Biederer, T. F. Sattel, T. Knopp, and T. M. Buzug. A surveillance unit for magnetic particle imaging. In *International Workshop on Magnetic Particle Imaging BoA*, volume 1, page 9, 2010.
- [55] T. M. Buzug, T. F. Sattel, M. Erbe, S. Biederer, J. Borgert, D. Finas, K. Dietrich, F. Vogt, J. Barkhausen, K. Lüdtke-Buzug, and T. Knopp. Alternative Spulentopologien für Magnetic-Particle-Imaging. In *RöFo - Fortschritte auf dem Gebiet der Röntgenstrahlen und der bildgebenden Verfahren*, 2010.
- [56] F. M. Vogt, S. Biederer, M. Simon, K. Lüdtke-Buzug, T. Knopp, T. F. Sattel, T.M. Buzug, and J. Barkhausen. Magnetic Particle Imaging: Evaluation unterschiedlicher superparamagnetischer Eisenoxidpartikel für ein neues bildgebendes Verfahren. In *RöFo - Fortschritte auf dem Gebiet der Röntgenstrahlen und der bildgebenden Verfahren*, 2010.
- [57] S. Biederer, S. Kren, T.F. Sattel, M. Erbe, T.Knopp, K. Lüdtke-Buzug, and T.M. Buzug. Ein magnetisches partikel-spektrometer zur messung der magnetisierung von nanopartikeln unter der verwendung von ac- und dc-feldern. In *44. Jahrestagung der Deutschen Gesellschaft für Biomedizinische Technik im VDE - BMT 2010*, volume 55, page 295pp, Rostock, Germany, 2010.
- [58] S. Biederer, T.F. Sattel, S. Kren, M. Erbe, T.Knopp, K. Lüdtke-Buzug, and T.M. Buzug. A spectrometer using oscillating and static fields to measure the suitability of super-paramagnetic nanoparticles for magnetic particle imaging. In *World Molecular Imaging Congress*, page 96, Kyoto, Japan, 2010.
- [59] M. Erbe, T. Knopp, S. Biederer, T. F. Sattel, and T. M. Buzug. Experimentelle Erzeugung einer magnetischen feldfreien Linie für die Anwendung in Magnetic Particle Imaging. In *44. Jahrestagung der Deutschen Gesellschaft für Biomedizinische Technik im VDE - BMT 2010*, page 101, Rostock, 2010.
- [60] K. Lüdtke-Buzug, S. Biederer, and T. M. Buzug. Analyse des Separationsergebnisses bei der Herstellung Superparamagnetischer Eisenoxid-Nanopartikel für Magnetic Particle Imaging. In *44. Jahrestagung der Deutschen Gesellschaft für Biomedizinische Technik im VDE - BMT 2010*, volume 55, page 640, Rostock, Germany, 2010.
- [61] T. Knopp, S. Biederer, T. F. Sattel, M. Erbe, and T. M. Buzug. Über das Auflösungsvermögen von Magnetic Particle Imaging. In *Bildverarbeitung für die Medizin*, 2011, accepted.
- [62] M. Erbe, T. Knopp, T. F. Sattel, S. Biederer, and T. M. Buzug. Experimentelle Validierung des Konzeptes einer feldfreie Linie für Magnetic-Particle-Imaging anhand von Magnetfeldmessungen. In *Bildverarbeitung für die Medizin*, 2011, accepted.
- [63] T. Knopp, T. F. Sattel, S. Biederer, J. Weizenecker, B. Gleich, J. Borgert, and T. M. Buzug. Receive coil array for magnetic particle imaging. In *IEEE International Symposium on Biomedical Imaging: From Nano to Macro*, 2011, accepted.

- [64] M. Weber, T. F. Sattel, T. Knopp, B. Gleich, J. Borgert, and T. M. Buzug. Optimierung einer Permanentmagnetgeometrie zur Generierung eines Selektionsfeldes für Magnetic-Particle-Imaging. In *Bildverarbeitung für die Medizin*, 2011, accepted.

Patenteinreichungen (3)

- [65] T. Knopp, T. F. Sattel, S. Biederer, and T. M. Buzug. Apparatus and method for generating and moving a magnetic field having a field free line, EP 09168383, submitted as european patent, 2009.
- [66] S. Biederer, T. F. Sattel, T. Knopp, and T. M. Buzug. Apparatus and method for influencing and/or detecting magnetic particles, EP 09168367, submitted as european patent, 2009.
- [67] T. M. Buzug, T. F. Sattel, T. Knopp, and S. Biederer. Apparatus and method for influencing and/or detecting magnetic particles in a field of view having an array of single-sided transmit coil sets, ID 294263, submitted as united states patent, 2010.