Tobias Knopp

List of Publications by Year in Descending Order

141 papers	2,801 citations	31 h-index	49 g-index
166 ext. papers	3,431 ext. citations	4.2 avg, IF	5.39 L-index

#	Paper	IF	Citations
141	Modeling the magnetization dynamics for large ensembles of immobilized magnetic nanoparticles in multi-dimensional magnetic particle imaging. *Journal of Magnetism and Magnetic Materials*, **2022**, 543, 168534	2.8	2
140	Simulating magnetization dynamics of large ensembles of single domain nanoparticles: Numerical study of Brown/Néel dynamics and parameter identification problems in magnetic particle imaging. *Journal of Magnetism and Magnetic Materials*, **2022**, 541, 168508	2.8	0
139	Magnetic particle imaging for assessment of cerebral perfusion and ischemia. *Wiley Interdisciplinary Reviews: Nanomedicine and Nanobiotechnology*, **2021**, e1757	9.2	2
138	MRIReco.jl: An MRI reconstruction framework written in Julia. *Magnetic Resonance in Medicine*, **2021**, 86, 1633-1646	4.4	4
137	Simultaneous imaging of widely differing particle concentrations in MPI: problem statement and algorithmic proposal for improvement. *Physics in Medicine and Biology*, **2021**, 66,	3.8	5
136	Experimental analysis of the log law at adverse pressure gradient. *Journal of Fluid Mechanics*, **2021**, 918,	3.7	4
135	A wavelet-based sparse row-action method for image reconstruction in magnetic particle imaging. *Medical Physics*, **2021**, 48, 3893-3903	4.4	4
134	Smart chest X-ray worklist prioritization using artificial intelligence: a clinical workflow simulation. *European Radiology*, **2021**, 31, 3837-3845	8	7
133	Efficient Joint Estimation of Tracer Distribution and Background Signals in Magnetic Particle Imaging Using a Dictionary Approach. *IEEE Transactions on Medical Imaging*, **2021**, 40, 3568-3579	11.7	1
132	Visualization of spatial and temporal temperature distributions with magnetic particle imaging for liver tumor ablation therapy. *Scientific Reports*, **2020**, 10, 7480	4.9	20
131	Suppression of Motion Artifacts Caused by Temporally Recurring Tracer Distributions in Multi-Patch Magnetic Particle Imaging. *IEEE Transactions on Medical Imaging*, **2020**, 39, 3548-3558	11.7	2
130	Development of long circulating magnetic particle imaging tracers: use of novel magnetic nanoparticles and entrapment into human erythrocytes. *Nanomedicine*, **2020**, 15, 739-753	5.6	14
129	Design of a head coil for high resolution mouse brain perfusion imaging using magnetic particle imaging. *Physics in Medicine and Biology*, **2020**, 65, 235007	3.8	6
128	3d-SMRnet: Achieving a New Quality of MPI System Matrix Recovery by Deep Learning. *Lecture Notes in Computer Science*, **2020**, 74-82	0.9	3
127	OpenMPIData: An initiative for freely accessible magnetic particle imaging data. *Data in Brief*, **2020**, 28, 104971	1.2	6
126	Simultaneous Magnetic Particle Imaging and Navigation of large superparamagnetic nanoparticles in bifurcation flow experiments. *Journal of Magnetism and Magnetic Materials*, **2020**, 498, 166206	2.8	23
125	Monitoring Intracranial Cerebral Hemorrhage Using Multicontrast Real-Time Magnetic Particle Imaging. *ACS Nano*, **2020**, 14, 13913-13923	16.7	18

124	Using Low-Rank Tensors for the Recovery of MPI System Matrices. *IEEE Transactions on Computational Imaging*, **2020**, 6, 1389-1402	4.5	6
123	Combining Direct 3D Volume Rendering and Magnetic Particle Imaging to Advance Radiation-Free Real-Time 3D Guidance of Vascular Interventions. *CardioVascular and Interventional Radiology*, **2020**, 43, 322-330	2.7	5
122	In-Vitro MPI-guided IVOCT catheter tracking in real time for motion artifact compensation. *PLoS ONE*, **2020**, 15, e0230821	3.7	4
121	In-Vitro MPI-guided IVOCT catheter tracking in real time for motion artifact compensation **2020**, 15, e0230821		
120	In-Vitro MPI-guided IVOCT catheter tracking in real time for motion artifact compensation **2020**, 15, e0230821		
119	In-Vitro MPI-guided IVOCT catheter tracking in real time for motion artifact compensation **2020**, 15, e0230821		
118	In-Vitro MPI-guided IVOCT catheter tracking in real time for motion artifact compensation **2020**, 15, e0230821		
117	When Does Bone Suppression And Lung Field Segmentation Improve Chest X-Ray Disease Classification? **2019**,		6
116	Bimodal intravascular volumetric imaging combining OCT and MPI. *Medical Physics*, **2019**, 46, 1371-1383	4.4	3
115	Correction of linear system drifts in magnetic particle imaging. *Physics in Medicine and Biology*, **2019**, 64, 125013	3.8	6
114	Comparison of Deep Learning Approaches for Multi-Label Chest X-Ray Classification. *Scientific Reports*, **2019**, 9, 6381	4.9	146
113	Human-sized magnetic particle imaging for brain applications. *Nature Communications*, **2019**, 10, 1936	17.4	96
112	Discriminating nanoparticle core size using multi-contrast MPI. *Physics in Medicine and Biology*, **2019**, 64, 074001	3.8	9
111	First magnetic particle imaging angiography in human-sized organs by employing a multimodal ex vivo pig kidney perfusion system. *Physiological Measurement*, **2019**, 40, 105002	2.9	12
110	Towards accurate modeling of the multidimensional magnetic particle imaging physics. *New Journal of Physics*, **2019**, 21, 103032	2.9	8
109	Toward employing the full potential of magnetic particle imaging: exploring visualization techniques and clinical use cases for real-time 3D vascular imaging **2019**,		2
108	MPIFiles.jl: A Julia Package for Magnetic Particle Imaging Files. *Journal of Open Source Software*, **2019**, 4, 1331	5.2	4
107	3D Printed Anatomical Model of a Rat for Medical Imaging. *Current Directions in Biomedical Engineering*, **2019**, 5, 187-190	0.5	2

106	A Wind Tunnel Experiment for Symmetric Wakes in Adverse Pressure Gradients **2019**,		2
105	Efficient Joint Image Reconstruction of Multi-Patch Data Reusing a Single System Matrix in Magnetic Particle Imaging. *IEEE Transactions on Medical Imaging*, **2019**, 38, 932-944	11.7	13
104	Magnetic particle imaging for in vivo blood flow velocity measurements in mice. *Physics in Medicine and Biology*, **2018**, 63, 064001	3.8	27
103	Influence of deformable image registration on 4D dose simulation for extracranial SBRT: A multi-registration framework study. *Radiotherapy and Oncology*, **2018**, 127, 225-232	5.3	11
102	Viscosity quantification using multi-contrast magnetic particle imaging. *New Journal of Physics*, **2018**, 20, 083001	2.9	23
101	Analysis of the influence of imaging-related uncertainties on cerebral aneurysm deformation quantification using a no-deformation physical flow phantom. *Scientific Reports*, **2018**, 8, 11004	4.9	4
100	Imaging and moving magnetic beads with magnetic particle imaging for targeted drug delivery **2018**,		3
99	Moving table magnetic particle imaging: a stepwise approach preserving high spatio-temporal resolution. *Journal of Medical Imaging*, **2018**, 5, 046002	2.6	4
98	Towards bimodal intravascular OCT MPI volumetric imaging **2018**,		1
97	Magnetic-Particle-Imaging mit mehreren Gradientenstärken. *Informatik Aktuell*, **2018**, 373-373	0.3	
96	Enlarging the field of view in magnetic particle imaging using a moving table approach **2018**,		1
95	A new cerebral vessel benchmark dataset (CAPUT) for validation of image-based aneurysm deformation estimation algorithms. *Scientific Reports*, **2018**, 8, 15999	4.9	1
94	Mathematical analysis of the 1D model and reconstruction schemes for magnetic particle imaging. *Inverse Problems*, **2018**, 34, 055012	2.3	6
93	In vitro and in vivo comparison of a tailored magnetic particle imaging blood pool tracer with Resovist. *Physics in Medicine and Biology*, **2017**, 62, 3454-3469	3.8	31
92	In vivo liver visualizations with magnetic particle imaging based on the calibration measurement approach. *Physics in Medicine and Biology*, **2017**, 62, 3470-3482	3.8	14
91	Detection and Compensation of Periodic Motion in Magnetic Particle Imaging. *IEEE Transactions on Medical Imaging*, **2017**, 36, 1511-1521	11.7	7
90	Magnetic particle imaging: from proof of principle to preclinical applications. *Physics in Medicine and Biology*, **2017**, 62, R124-R178	3.8	93
89	Direct Image Reconstruction of Lissajous-Type Magnetic Particle Imaging Data Using Chebyshev-Based Matrix Compression. *IEEE Transactions on Computational Imaging*, **2017**, 3, 671-681	4.5	11

88	Hybrid system calibration for multidimensional magnetic particle imaging. *Physics in Medicine and Biology*, **2017**, 62, 3392-3406	3.8	23
87	Magnetic Particle Imaging for Real-Time Perfusion Imaging in Acute Stroke. *ACS Nano*, **2017**, 11, 10480-10488	10.8	99
86	Fast multiresolution data acquisition for magnetic particle imaging using adaptive feature detection. *Medical Physics*, **2017**, 44, 6456-6460	4.4	8
85	First experimental comparison between the Cartesian and the Lissajous trajectory for magnetic particle imaging. *Physics in Medicine and Biology*, **2017**, 62, 3407-3421	3.8	16
84	Towards Picogram Detection of Superparamagnetic Iron-Oxide Particles Using a Gradiometric Receive Coil. *Scientific Reports*, **2017**, 7, 6872	4.9	70
83	Edge Preserving and Noise Reducing Reconstruction for Magnetic Particle Imaging. *IEEE Transactions on Medical Imaging*, **2017**, 36, 74-85	11.7	34
82	Hybrid RANS/LES Study of the Development of an Airfoil-Generated Vortex. *Notes on Numerical Fluid Mechanics and Multidisciplinary Design*, **2016**, 41-54	0.3	2
81	Online reconstruction of 3D magnetic particle imaging data. *Physics in Medicine and Biology*, **2016**, 61, N257-67	3.8	37
80	Using data redundancy gained by patch overlaps to reduce truncation artifacts in magnetic particle imaging. *Physics in Medicine and Biology*, **2016**, 61, 4583-4598	3.8	14
79	Sensitivity Enhancement in Magnetic Particle Imaging by Background Subtraction. *IEEE Transactions on Medical Imaging*, **2016**, 35, 893-900	11.7	41
78	Experimental Investigation of a Turbulent Boundary Layer Subject to an Adverse Pressure Gradient at (Re_{theta }) up to 10000 Using Large-Scale and Long-Range Microscopic Particle Imaging. *ERCOFTAC Series*, **2016**, 271-281	0.1	1
77	Magnetic Particle / Magnetic Resonance Imaging: In-Vitro MPI-Guided Real Time Catheter Tracking and 4D Angioplasty Using a Road Map and Blood Pool Tracer Approach. *PLoS ONE*, **2016**, 11, e0156899	3.7	65
76	Magnetic Particle Imaging for High Temporal Resolution Assessment of Aneurysm Hemodynamics. *PLoS ONE*, **2016**, 11, e0160097	3.7	41
75	Subpixelgenaue Positionsbestimmung in Magnetic-Particle-Imaging. *Informatik Aktuell*, **2016**, 20-25	0.3	0
74	Geometrieplanung und Bildregistrierung mittels bimodaler Fiducial-Marker für Magnetic Particle Imaging. *Informatik Aktuell*, **2016**, 128-133	0.3	
73	MPI as high temporal resolution imaging technique for in vivo bolus tracking of Ferucarbotran in mouse model **2016**,		2
72	Artifact free reconstruction with the system matrix approach by overscanning the field-free-point trajectory in magnetic particle imaging. *Physics in Medicine and Biology*, **2016**, 61, 475-87	3.8	38
71	Non-Equispaced System Matrix Acquisition for Magnetic Particle Imaging Based on Lissajous Node Points. *IEEE Transactions on Medical Imaging*, **2016**, 35, 2476-2485	11.7	18

70	Increasing the sensitivity for stem cell monitoring in system-function based magnetic particle imaging. *Physics in Medicine and Biology*, **2016**, 61, 3279-90	3.8	40
69	Geometry planning and image registration in magnetic particle imaging using bimodal fiducial markers. *Medical Physics*, **2016**, 43, 2884-2893	4.4	14
68	Investigation of the Law-of-the-Wall for a Turbulent Boundary Layer Flow Subject to an Adverse Pressure Gradient Using Particle Imaging. *Notes on Numerical Fluid Mechanics and Multidisciplinary Design*, **2016**, 177-187	0.3	
67	Symmetries of the 2D magnetic particle imaging system matrix. *Physics in Medicine and Biology*, **2015**, 60, 4033-44	3.8	7
66	Investigation of scaling laws in a turbulent boundary layer flow with adverse pressure gradient using PIV. *Journal of Turbulence*, **2015**, 16, 250-272	2.1	22
65	Joint reconstruction of non-overlapping magnetic particle imaging focus-field data. *Physics in Medicine and Biology*, **2015**, 60, L15-21	3.8	39
64	Compressed Sensing of the System Matrix and Sparse Reconstruction of the Particle Concentration in Magnetic Particle Imaging. *IEEE Transactions on Magnetics*, **2015**, 51, 1-4	2	5
63	Combined Preclinical Magnetic Particle Imaging and Magnetic Resonance Imaging: Initial Results in Mice. *RoFo Fortschritte Auf Dem Gebiet Der Rontgenstrahlen Und Der Bildgebenden Verfahren*, **2015**, 187, 347-52	2.3	33
62	Reconstruction of the Magnetic Particle Imaging System Matrix Using Symmetries and Compressed Sensing. *Advances in Mathematical Physics*, **2015**, 2015, 1-9	1.1	9
61	Local System Matrix Compression for Efficient Reconstruction in Magnetic Particle Imaging. *Advances in Mathematical Physics*, **2015**, 2015, 1-7	1.1	14
60	MPI focus field experiments using non-overlapping focus-field patches **2015**,		1
59	Multithreading-Support für die Programmiersprache Julia. *Informatik Aktuell*, **2015**, 383-388	0.3	
58	Efficient gradient field generation providing a multi-dimensional arbitrary shifted field-free point for magnetic particle imaging. *Journal of Applied Physics*, **2014**, 115, 044910	2.5	9
57	Experimental Investigation of the Log-Law for an Adverse Pressure Gradient Turbulent Boundary Layer Flow at Re θ = 10000. *Flow, Turbulence and Combustion*, **2014**, 92, 451-471	2.5	24
56	Toward cardiovascular interventions guided by magnetic particle imaging: first instrument characterization. *Magnetic Resonance in Medicine*, **2013**, 69, 1761-7	4.4	32
55	Recovery of the magnetic particle imaging system matrix using compressed sensing reconstruction **2013**,		2
54	Sparse reconstruction of the magnetic particle imaging system matrix. *IEEE Transactions on Medical Imaging*, **2013**, 32, 1473-80	11.7	31
53	Analog receive signal processing for magnetic particle imaging. *Medical Physics*, **2013**, 40, 042303	4.4	39

52	Simulation of Wing Stall **2013**,		4
51	On the formulation of the image reconstruction problem in magnetic particle imaging. *Biomedizinische Technik*, **2013**, 58, 583-91	1.3	38
50	From Data to Images: Reconstruction **2012**, 127-148		
49	Magnetic Particle Imaging **2012**,		65
48	Chimera technique for transporting disturbances. *International Journal for Numerical Methods in Fluids*, **2012**, 70, 1558-1572	1.9	3
47	How Magnetic Particle Imaging Works **2012**, 11-70		
46	Prior to Reconstruction ⬜The System Function **2012**, 97-125		1
45	How to Build an MPI Scanner **2012**, 71-95		1
44	Efficient Magnetic Gradient Field Generation With Arbitrary Axial Displacement for Magnetic Particle Imaging. *IEEE Magnetics Letters*, **2012**, 3, 6500104-6500104	1.6	11
43	Single-sided magnetic particle imaging device for the sentinel lymph node biopsy scenario **2012**,		3
42	Enhancing the efficiency of a field free line scanning device for magnetic particle imaging **2012**,		3
41	Influence of Magnetic Field Optimization on Image Quality Achieved for Efficient Radon-Based Reconstruction in Field Free Line Imaging in MPI. *Springer Proceedings in Physics*, **2012**, 225-229	0.2	2
40	Special System Topologies **2012**, 149-170		
39	Efficient Positioning of the Field-Free Point in Magnetic Particle Imaging. *Springer Proceedings in Physics*, **2012**, 161-165	0.2	
38	Prediction of the spatial resolution of magnetic particle imaging using the modulation transfer function of the imaging process. *IEEE Transactions on Medical Imaging*, **2011**, 30, 1284-92	11.7	61
37	A Fourier slice theorem for magnetic particle imaging using a field-free line. *Inverse Problems*, **2011**, 27, 095004	2.3	26
36	1D-image reconstruction for magnetic particle imaging using a hybrid system function **2011**,		9
35	Novel hardware developments in magnetic particle imaging **2011**,		1

34	Experimental generation of an arbitrarily rotated field-free line for the use in magnetic particle imaging. *Medical Physics*, **2011**, 38, 5200-7	4.4	30
33	Effiziente Rekonstruktion und alternative Spulentopologien für Magnetic-Particle-Imaging **2011**,		5
32	Optimierung einer Permanentmagnetgeometrie zur Generierung eines Selektionsfeldes für Magnetic-Particle-Imaging. *Informatik Aktuell*, **2011**, 419-423	0.3	
31	Über das Auflösungsvermögen von Magnetic-Particle-Imaging. *Informatik Aktuell*, **2011**, 329-333	0.3	
30	Experimentelle Validierung des Konzeptes einer feldfreie Linie für Magnetic-Particle-Imaging anhand von Magnetfeldmessungen. *Informatik Aktuell*, **2011**, 334-338	0.3	
29	Efficient generation of a magnetic field-free line. *Medical Physics*, **2010**, 37, 3538-40	4.4	34
28	Limitations of measurement-based system functions in magnetic particle imaging **2010**,		3
27	Weighted iterative reconstruction for magnetic particle imaging. *Physics in Medicine and Biology*, **2010**, 55, 1577-89	3.8	106
26	Generation of a static magnetic field-free line using two Maxwell coil pairs. *Applied Physics Letters*, **2010**, 97, 092505	3.4	23
25	Field-free line formation in a magnetic field. *Journal of Physics A: Mathematical and Theoretical*, **2010**, 43, 012002	2	32
24	2D model-based reconstruction for magnetic particle imaging. *Medical Physics*, **2010**, 37, 485-91	4.4	61
23	SUPERPARAMAGNETIC IRON OXIDE NANOPARTICLES FOR MAGNETIC PARTICLE IMAGING **2010**,		1
22	SENTINEL LYMPHNODE DETECTION IN BREAST CANCER BY MAGNETIC PARTICLE IMAGING USING SUPERPARAMAGNETIC NANOPARTICLES **2010**,		3
21	A SPECTROMETER TO MEASURE THE USABILITY OF NANOPARTICLES FOR MAGNETIC PARTICLE IMAGING **2010**,		3
20	Model-based reconstruction for magnetic particle imaging. *IEEE Transactions on Medical Imaging*, **2010**, 29, 12-8	11.7	95
19	RESOLUTION DISTRIBUTION IN SINGLE-SIDED MAGNETIC PARTICLE IMAGING **2010**,		3
18	Application of a New Roughness Extension for k Turbulence Models. *Notes on Numerical Fluid Mechanics and Multidisciplinary Design*, **2010**, 43-50	0.3	
17	Iterative off-resonance and signal decay estimation and correction for multi-echo MRI. *IEEE Transactions on Medical Imaging*, **2009**, 28, 394-404	11.7	19

List of Publications

16	A new extension for k-turbulence models to account for wall roughness. *International Journal of Heat and Fluid Flow*, **2009**, 30, 54-65	2.4	61
15	Preparation and Characterization of Dextran-Covered Fe3O4 Nanoparticles for Magnetic Particle Imaging. *IFMBE Proceedings*, **2009**, 2343-2346	0.2	6
14	Estimation of Magnetic Nanoparticle Diameter with a Magnetic Particle Spectrometer. *IFMBE Proceedings*, **2009**, 61-64	0.2	1
13	Single-sided device for magnetic particle imaging. *Journal Physics D: Applied Physics*, **2009**, 42, 022001	3	86
12	Trajectory analysis for magnetic particle imaging. *Physics in Medicine and Biology*, **2009**, 54, 385-97	3.8	120
11	Magnetization response spectroscopy of superparamagnetic nanoparticles for magnetic particle imaging. *Journal Physics D: Applied Physics*, **2009**, 42, 205007	3	162
10	A Spectrometer for Magnetic Particle Imaging. *IFMBE Proceedings*, **2009**, 2313-2316	0.2	10
9	Particle-Size Distribution of Dextran- and Carboxydextran-Coated Superparamagnetic Nanoparticles for Magnetic Particle Imaging. *IFMBE Proceedings*, **2009**, 226-229	0.2	6
8	Magnetic Particle Imaging durch Superparamagnetische Nanopartikel zur Sentinellymphknotendetektion beim Mammakarzinom. *Geburtshilfe Und Frauenheilkunde*, **2009**, 69,	2	10
7	Trajektoriendichte bei Magnetic Particle Imaging. *Informatik Aktuell*, **2009**, 71-75	0.3	
6	CT-MAR Reconstruction Using Non-Uniform Fourier Transform. *IFMBE Proceedings*, **2009**, 861-865	0.2	
5	Evaluation of surrogate data quality in sinogram-based CT metal-artifact reduction **2008**,		6
4	Singular value analysis for Magnetic Particle Imaging **2008**,		15
3	A note on the iterative MRI reconstruction from nonuniform k-space data. *International Journal of Biomedical Imaging*, **2007**, 2007, 24727	5.2	52
2	Field inhomogeneity correction based on gridding reconstruction for magnetic resonance imaging. *IEEE Transactions on Medical Imaging*, **2007**, 26, 374-84	11.7	31
1	A grid and flow adaptive wall-function method for RANS turbulence modelling. *Journal of Computational Physics*, **2006**, 220, 19-40	4.1	60