

## List of Publications - Ingo Manke

Publications in refereed Journals: > 300                      h index = 47  
High Profile Journals IF > 7:                      > 50

### Selected Publications

- I. F. Sun, X. He, X. Jiang, M. Osenberg, J. Li, D. Zhou, K. Dong, A. Hilger, X. Zhu, R. Gao, X. Liu, K. Huang, D. Ning, H. Markötter, L. Zhang, F. Wilde, Y. Cao, M. Winter, I. Manke  
*Advancing knowledge of electrochemically generated lithium microstructure and performance decay of lithium ion battery by synchrotron X-ray tomography*  
**Materials Today**, <https://doi.org/10.1016/j.mattod.2018.11.003> (2019)  
impact factor = 24.5
- II. F. Sun, R. Gao, D. Zhou, M. Osenberg, K. Dong, N. Kardjilov, A. Hilger, H. Markötter, P. M. Bieker, X. Liu, I. Manke  
*Revealing Hidden Facts of Li Anode in Cycled Lithium–Oxygen Batteries through X-ray and Neutron Tomography*  
**ACS Energy Letters** **4**, 306-316 (2019)  
impact factor = 12.3
- III. A. Hilger, I. Manke, N. Kardjilov, M. Osenberg, H. Markötter, J. Banhart  
*Tensorial neutron tomography of three-dimensional magnetic vector fields in bulk materials*  
**Nature Communications** **9**, 4023 (2018)  
impact factor = 12.4
- IV. N. Kardjilov, I. Manke, R. Woracek, A. Hilger, J. Banhart  
*Advances in neutron imaging*  
**Materials Today** <https://doi.org/10.1016/j.mattod.2018.03.001> (2018)  
impact factor = 24.5
- V. K. Dong, H. Markötter, F. Sun, A. Hilger, N. Kardjilov, J. Banhart, I. Manke,  
*In situ and Operando Tracking of Microstructure and Volume Evolution of Silicon Electrode using Synchrotron X-ray Imaging*  
**ChemSusChem** <https://doi.org/10.1002/cssc.201801969> (2018)  
impact factor = 7.4
- VI. F. Sun, M. Osenberg, K. Dong, D. Zhou, A. Hilger, C.J. Jafta, S. Risse, Y. Lu, H. Markötter, I. Manke  
*Correlating Morphological Evolution of Li Electrodes with Degrading Electrochemical Performance of Li/LiCoO<sub>2</sub> and Li/S Battery Systems: Investigated by Synchrotron X-ray Phase Contrast Tomography*  
**ACS Energy Letters** **3**, 2, 356-365 (2018)  
impact factor = 12.3
- VII. F. Sun, K. Dong, M. Osenberg, A. Hilger, S. Risse, Y. Lu, P.H. Kamm, M. Klaus, H. Markötter, F. Garcia-Moreno, T. Arlt, I. Manke  
*Visualizing the morphological and compositional evolution of the interface of InLi-anode|thio-LISiON electrolyte in an all-solid-state Li-S cell by in operando synchrotron X-ray tomography and energy dispersive diffraction*  
**Journal of Materials Chemistry A** **6**, 45, 22489-22496 (2018)  
impact factor = 9.9
- VIII. S.S. Alrwashdeh, I. Manke, H. Markötter, M. Klages, M. Göbel, J. Haußmann, J. Scholta, J. Banhart  
*In Operando Quantification of Three-Dimensional Water Distribution in Nanoporous Carbon-Based Layers in Polymer Electrolyte Membrane Fuel Cells*  
**ACS Nano** **11**, 6, p. 5944-5949 (2017)  
impact factor = 13.7

- IX. W. Zhang, D. Schröder, T. Arlt, I. Manke, R. Korever, R. Pinedo, D. A. Weber, J. Sann, W. G. Zeier and J. Janek  
*(Electro)chemical expansion during cycling: monitoring the pressure changes in operating solid-state lithium batteries*  
**Journal of Materials Chemistry A** 5, p. 9929-9936 (2017)  
impact factor = 9.9
- X. W. Zhang, D. A. Weber, H. Weigand, T. Arlt, I. Manke, D. Schröder, W. G. Zeier and J. Janek  
*Interfacial processes and microstructure of composite cathodes controlling the performance of all-solid-state lithium ion batteries*  
**ACS Applied Materials & Interfaces** 9, 21, p. 17835-17845 (2017)  
impact factor = 8.1
- XI. F. Sun, R. Moroni, K. Dong, H. Markötter, D. Zhou, A. Hilger, L. Zielke, R. Zengerle, S. Thiele, J. Banhart, I. Manke  
*A Study of the mechanisms of internal short circuit in a Li/Li cell by synchrotron X-ray phase contrast tomography*  
**ACS Energy Letters** 2, 1, 94-104 (2017)  
impact factor = 12.3
- XII. Y Yang, S Risse, S Mei, CJ Jafta, Y Lu, C Stöcklein, N Kardjilov, I Manke, J. Gong, Z. Kochovski, M. Ballauff  
*Binder-free carbon monolith cathode material for operando investigation of high performance lithium-sulfur batteries with X-ray radiography*  
**Energy Storage Materials** 9, p.96-104 (2017)  
impact factor = 13.3
- XIII. F. Sun, L. Zielke, H. Markötter, A. Hilger, D. Zhou, R. Moroni, R. Zengerle, S. Thiele, J. Banhart, I. Manke  
*Morphological evolution of electrochemically plated/stripped lithium microstructures by synchrotron X-ray phase contrast tomography*  
**ACS Nano** 10, 8, p. 7990-7997 (2016)  
impact factor = 13.9
- XIV. F. Sun, H. Markötter, D. Zhou, S.S. Alrwashdeh, A. Hilger, N. Kardjilov, I. Manke, J. Banhart  
*In Situ Radiographic Investigation of (De)Lithiation Mechanisms in a Tin-Electrode Lithium-Ion Battery*  
**ChemSusChem** 9, 9, p. 946-950 (2016)  
impact factor = 7.4
- XV. F. Sun, H. Markötter, I. Manke, T. Arlt, A. Hilger, Ch. Tötze, N. Kardjilov, J. Banhart  
*Three-Dimensional Visualization of Gas Evolution and Channel Formation inside a Lithium-Ion Battery*  
**ACS Applied Materials & Interfaces** 8, 11, p. 7156–7164 (2016)  
impact factor = 8.1
- XVI. L. Zielke, T. Hutzenlaub, D. R. Wheeler, C. W. Chao, I. Manke, A. Hilger, N. Paust, R. Zengerle, S. Thiele  
*Three-phase multiscale modeling of a LiCoO<sub>2</sub> cathode – Combining the advantages of FIB-SEM imaging and X-ray tomography*  
**Advanced Energy Materials** 5, 5, p. 1401612 (2015)  
impact factor = 21.9
- XVII. R. Woracek, D. Penumadu, N. Kardjilov, A. Hilger, M. Boin, J. Banhart, I. Manke  
*3D Mapping of Crystallographic Phase Distribution using Energy-Selective Neutron Tomography*  
**Advanced Materials** 26, p. 4069–4073 (2014)  
impact factor = 22.0
- XVIII. L. Zielke, T. Hutzenlaub, D. R. Wheeler, I. Manke, T. Arlt, N. Paust, R. Zengerle, S. Thiele  
*A Combination of X-ray Tomography and Carbon Binder Modeling - Reconstructing the Three Phases of LiCoO<sub>2</sub> Li-ion Battery Cathodes*  
**Advanced Energy Materials** 4, 8, p. 1301617 (2014)  
impact factor = 21.9

- XIX. N. Kardjilov, I. Manke, A. Hilger, M. Strobl, J. Banhart  
*Neutron imaging in materials science*  
**Materials Today** 14, 6, p. 248-256 (2011)  
 impact factor = 24.5
- XX. R. Grothausmann, G. Zehl, I. Manke, S. Fiechter, P. Bogdanoff, I. Dorbandt, A. Kupsch, A. Lange, M. Hentschel, G. Schumacher, J. Banhart  
*Quantitative Structural Assessment of Heterogeneous Catalysts by Electron Tomography*  
**Journal of the American Chemical Society**, 133, 45, p. 18161-18171 (2011)  
 impact factor = 14.4
- XXI. F. Witzmann, K. M. Claeson, O. Hampe, F. Wieder, A. Hilger, I. Manke, M. Niederhagen, B. M. Rothschild and P. Asbach  
*Paget disease of bone in a Jurassic dinosaur*  
**Current Biology**, 21, 17, p. R647-R648 (2011)  
 impact factor = 9.3
- XXII. I. Manke, N. Kardjilov, R. Schäfer, A. Hilger, M. Strobl, M. Dawson, C. Grünzweig, G. Behr, M. Hentschel, C. David, A. Kupsch, A. Lange, J. Banhart  
*Three-dimensional imaging of magnetic domains*  
**Nature Communications** 1, 125, DOI: 10.1038/ncomms1125 (2010)  
 impact factor = 12.4
- XXIII. M. Strobl, C. Grünzweig, A. Hilger, I. Manke, N. Kardjilov, C. David, F. Pfeiffer  
*Neutron dark-field tomography*  
**Physical Review Letters** 101, 123902 (2008)  
 impact factor = 8.8
- XXIV. N. Kardjilov, I. Manke, M. Strobl, A. Hilger, W. Treimer, M. Meissner, T. Krist, J. Banhart  
*Three-dimensional imaging of magnetic fields with polarised neutrons*  
**Nature Physics** 4, p. 399-403 (2008)  
 impact factor = 22.7

## Complete List of Publications

### 2018/19 (in progress)

#### ISI journals

- 340 F. Sun, X. He, X. Jiang, M. Osenberg, J. Li, D. Zhou, K. Dong, A. Hilger, X. Zhu, R. Gao, X. Liu, K. Huang, D. Ning, H. Markötter, L. Zhang, F. Wilde, Y. Cao, M. Winter, I. Manke  
*Advancing knowledge of electrochemically generated lithium microstructure and performance decay of lithium ion battery by synchrotron X-ray tomography*  
**Materials Today**, <https://doi.org/10.1016/j.mattod.2018.11.003> (2019)  
 impact factor = 24.5
- 339 F. Sun, R. Gao, D. Zhou, M. Osenberg, K. Dong, N. Kardjilov, A. Hilger, H. Markötter, P. M. Bieker, X. Liu, I. Manke  
*Revealing Hidden Facts of Li Anode in Cycled Lithium–Oxygen Batteries through X-ray and Neutron Tomography*  
**ACS Energy Letters** 4, 306-316 (2019)  
 impact factor = 12.3
- 338 A. Hilger, I. Manke, N. Kardjilov, M. Osenberg, H. Markötter, J. Banhart  
*Tensorial neutron tomography of three-dimensional magnetic vector fields in bulk materials*  
**Nature Communications** 9, 4023 (2018)  
 impact factor = 12.4
337. N. Kardjilov, I. Manke, R. Woracek, A. Hilger, J. Banhart  
*Advances in neutron imaging*  
**Materials Today** <https://doi.org/10.1016/j.mattod.2018.03.001> (2018)  
 impact factor = 24.5

336. H. Markötter, I. Manke, J. Böll, S. Alrwashdeh, A. Hilger, M. Klages, J. Haussmann, J. Scholta,  
*Morphology correction technique for tomographic in-situ and operando studies in energy research*  
**Journal of Power Sources** 414, p. 8-12, (2019)  
impact factor = 7.0
- 335 S. Perez-Tamarit, E. Solorzano, A. Hilger, I. Manke, M.A. Rodriguez-Perez: Effect of solid phase corrugation on the thermo-mechanical properties of low density flexible cellular polymers, **Materials & Design** 161, p. 106-113, (2019)  
impact factor = 4.5
- 334 K. Dong, H. Markötter, F. Sun, A. Hilger, N. Kardjilov, J. Banhart, I. Manke,  
*In situ and Operando Tracking of Microstructure and Volume Evolution of Silicon Electrode using Synchrotron X-ray Imaging*  
**ChemSusChem** <https://doi.org/10.1002/cssc.201801969> (2018)  
impact factor = 7.4
- 333 W.B. Herppich, C.E. Martin, C. Tötzke, I. Manke, N. Kardjilov  
*External water transport is more important than vascular transport in the extreme atmospheric epiphyte Tillandsia usneoides (Spanish moss)*  
**Plant, cell & environment** <https://doi.org/10.1111/pce.13496> (2018)  
impact factor = 5.4
332. F. Sun, R. Moroni, K. Dong, H. Markötter, D. Zhou, A. Hilger, L. Zielke, R. Zengerle, S. Thiele, J. Banhart, I. Manke  
*A Study of the mechanisms of internal short circuit in a Li/Li cell by synchrotron X-ray phase contrast tomography*  
**ACS Energy Letters** 2, 1, 94-104 (2017)  
impact factor = 12.3
331. R. Franke-Lang, T. Arlt, I. Manke, J. Kowal  
*X-ray tomography as a powerful method for zinc-air battery research*  
**Journal of Power Sources** 370, p. 45-51 (2018)  
impact factor = 7.0
330. M.G. Makowska, M Strobl, N Kardjilov, HL Frandsen, I Manke, M Morgano, M.E. Lacatusu, S. De Angelis, E.M.I Lauridsen, L.T. Kuhn  
*In-situ two-phase flow investigation of different porous transport layer for a polymer electrolyte membrane (PEM) electrolyzer with neutron spectroscopy*  
**Physica B: Condensed Matter** 551, p. 124-28, (2018)
329. O. Panchenko, E. Borgardt, W. Zwaygardt, F.J. Hackemueller, M. Bram, N. Kardjilov, T. Arlt, I. Manke, M. Mueller, D. Stolten, W. Lehnert  
*In-situ two-phase flow investigation of different porous transport layer for a polymer electrolyte membrane (PEM) electrolyzer with neutron spectroscopy*  
**Journal of Power Sources** 390, p. 108-115 (2018)  
impact factor = 7.0
328. D. Kartouzian, A. Mohseninia, H. Markötter, J. Scholta, I. Manke  
*Neutron Tomographic Investigation of the Effect of Hydrophobicity Gradients within MPL and MEA on the Spatial Distribution and Transport of Liquid Water in PEMFCs*  
**ECS Transactions** 85, p. 927-934 (2018)
327. A. Mohseninia, D. Kartouzian, H. Markötter, U.U. Ince, I. Manke, J. Scholta  
*Neutron Radiographic Investigations on the Effect of Hydrophobicity Gradients within MPL and MEA on Liquid Water Distribution and Transport in PEMFCs*  
**ECS Transactions** 85, p. 1013-1021, (2018)
- 326 T. Arlt, N. Kardjilov, A. Kupsch, I. Manke, F. Salvemini, F. Grazzi  
*Neutron computed laminography on an ancient metal artifact*  
**Materials Testing** 60, p.1209-1214, (2018)

- 325 M. Goebel, S. Kirsch, L. Schwarze, L. Schmidt, H. Scholz, J. Haussmann, M. Klages, J. Scholta, H. Markoetter, S. Alrwashdeh, I. Manke, B.R. Mueller: Transient limiting current measurements for characterization of gas diffusion layers, **Journal of Power Sources** 402 p. 237-245 (2018)  
impact factor = 7.0
- 324 F. Heubner, A. Hilger, N. Kardjilov, I. Manke, B. Kieback, L. Gondek, J. Banhart, L. Roentzsch: In-operando stress measurement and neutron imaging of metal hydride composites for solid-state hydrogen storage, **Journal of Power Sources** 397, 262-270 (2018)  
impact factor = 7.0
- 323 K. Kuchler, B. Prifling, D. Schmidt, H. Markoetter, I. Manke, T. Bernthaler, V. Knoblauch, V. Schmidt: Analysis of the 3D microstructure of experimental cathode films for lithium-ion batteries under increasing compaction, **Journal of Microscopy** 272, p. 96-110 (2018)
- 322 J.M. Yu, N. Wanderka, A. Rack, R. Daudin, E. Boller, H. Markoetter, A. Manzoni, F. Vogel, T. Arlt, I. Manke, J. Banhart: Influence of impurities, strontium addition and cooling rate on microstructure evolution in Al-10Si-0.3Fe casting alloys, **Journal of Alloys and Compounds** 766, p. 818-827 (2018)  
impact factor = 3.8
- 321 S. Perez-Tamarit, E. Solorzano, A. Hilger, I. Manke, M.A. Rodriguez-Perez, Multi-scale tomographic analysis of polymeric foams: A detailed study of the cellular structure, **European Polymer Journal** 109, p. 169-178, (2018)  
impact factor = 3.7
- 320 M. Neumann, M. Osenberg, A. Hilger, D. Franzen, T. Turek, I. Manke, V. Schmidt: On a pluri-Gaussian model for three-phase microstructures, with applications to 3D image data of gas-diffusion electrodes, **Computational Materials Science** 156 p. 325-331, (2019)
319. A. Isaac, F.A.F. Antunes, R. Conti, L.A. Montoro, A. Malachias, P. Massara, G. Kitten, H. Markoetter, I. Manke, S.S. da Silva  
*Unveiling 3D physicochemical changes of sugarcane bagasse during sequential acid/alkali pretreatments by synchrotron phase-contrast imaging*  
**Industrial Crops and Products** 114, p. 19-27 (2018)  
impact factor = 3.8
318. U.U. Ince, H. Markötter, M.G. George, H. Liu, N. Ge, J. Lee, S.S. Alrwashdeh, R. Zeis, M. Messerschmidt, J. Scholta, A. Bazylak, I. Manke  
*Effects of compression on water distribution in gas diffusion layer materials of PEMFC in a point injection device by means of synchrotron X-ray imaging*  
**International Journal of Hydrogen Energy** 43, 1, 391-406 (2018)  
impact factor = 4.2
317. N Kardjilov, A Hilger, I Manke, M Strobl, J Banhart  
*Imaging with Polarized Neutrons*  
**Journal of Imaging** 4 (1), 23 (2018)
316. Y. Shashev, A. Kupsch, A. Lange, S. Evsevlev, B.R. Mller, M. Osenberg, I. Manke, M.P. Hentschel, G. Bruno  
*Optimizing the visibility of X-ray phase grating interferometry*  
**Materials Testing** 59, p. 974-980 (2018)
315. D. Westhoff, I. Manke, V. Schmidt  
*Generation of virtual lithium-ion battery electrode microstructures based on spatial stochastic modeling*  
**Computational Materials Science** 151, p. 53-64 (2018)
314. I.S. Ritsche, J.M. Fahlke, F. Wieder, A. Hilger, I. Manke, O. Hampe  
*Optimizing the visibility of X-ray phase grating interferometry*  
**Fossil Record** 21, pp. 33-45 (2018)

313. K. Kuchler, D. Westhoff, J. Feinauer, T. Mitsch, I. Manke, V. Schmidt  
*Stochastic model for the 3D microstructure of pristine and cyclically aged cathodes in Li-ion batteries*  
**Modelling and Simulation in Materials Science and Engineering** 26, DOI:10.1088/1361-651X/aaa6da (2018)
312. T. Arlt, F. Wieder, I. Ritsche, A. Hilger, N. Kardjilov, J.M. Fahlke, O. Hampe, I. Manke  
*X-ray and neutron tomography on the bony inner ear of baleen whales*  
**Materials Testing**, 60, p. 173-178 (2018)
311. M.G. Makowska, M. Strobl, N. Kardjilov, H.L. Frandsen, I. Manke, M. Morgano, M.E. Lacatusu, S. de Angelis, E.M. Lauridsen, L.T. Kuhn  
*Investigating phase behavior and structural changes in NiO/Ni-YSZ composite with monochromatic in-situ 2D and static 3D neutron imaging*  
**Physica B: Physics of Condensed Matter** 551, p. 24-28 (2018)
310. M. Osenberg, I. Manke, A. Hilger, N. Kardjilov, J. Banhart  
*An X-ray Tomographic Study of Rechargeable Zn/MnO<sub>2</sub> Batteries*  
**Materials** 11, 9, 1486 (2018)

### **Miscellaneous publications**

309. SS Alrwashdeh, FM Alsarairah, MA Sarairah, H Markötter, N Kardjilov, M. Klages, J. Scholta, I. Manke  
*In-situ investigation of water distribution in polymer electrolyte membrane fuel cells using high-resolution neutron tomography with 6.5 µm pixel size*  
**AIMS Energy** 6, 4, p. 607-614 (2018)
308. M Neumann, R Cabisco, M Osenberg, H Markötter, I Manke, JH Finke, V.Schmidt  
*Characterization of the 3D microstructure of Ibuprofen tablets by means of synchrotron tomography*  
 arXiv preprint arXiv:1806.04631 (2018)
307. B. Prifling, O. Furat, D. Schmidt, H. Markötter, I. Manke, T. Bernthaler, V. Knoblauch, V. Schmidt  
*3D-Mikrostrukturanalyse von Elektroden in Lithium-Ionen-Batterien*  
 DGM-Jahresmagazin Materialographie p. 88-91 (2018)

## **2017**

### **ISI journals**

306. I. Dhiman, R. Ziesche, T. Wang, H. Bilheux, L. Santodonato, X. Tong, C.Y. Jiang, I. Manke, W. Treimer, T. Chatterji, N. Kardjilov  
*Setup for polarized neutron imaging using in situ He-3 cells at the Oak Ridge National Laboratory High Flux Isotope Reactor CG-1D beamline*  
**Review of Scientific Instruments** 88 (2017)
305. S.S. Alrwashdeh, I. Manke, H. Markötter, M. Klages, M. Göbel, J. Haußmann, J. Scholta, J. Banhart  
*In Operando Quantification of Three-Dimensional Water Distribution in Nanoporous Carbon-Based Layers in Polymer Electrolyte Membrane Fuel Cells*  
**ACS Nano** 11, 6, p. 5944-5949 (2017)  
 impact factor = 13.9
304. W. Zhang, D. Schröder, T. Arlt, I. Manke, R. Korever, R. Pinedo, D. A. Weber, J. Sann, W. G. Zeier and J. Janek  
*(Electro)chemical expansion during cycling: monitoring the pressure changes in operating solid-state lithium batteries*  
**Journal of Materials Chemistry A** 5, p. 9929-9936 (2017)  
 impact factor = 8.9

303. S.S. Alrwashdeh, H. Markotter, J. Haußmann, A. Hilger, M. Klages, B.R. Muller, A. Kupsch, H. Riesemeier, J. Scholta, I. Manke  
*Investigation of Water Transport in Newly Developed Micro Porous Layers for Polymer Electrolyte Membrane Fuel Cells*  
**Applied Microscopy** 47, pp. 101-104 (2017)
302. Y. Yang, S. Risse, S. Mei, C. J. Jaffa, Y. Lu, C. Stöcklein, N. Kardjilov, I. Manke, J. Gong and Z. Kochovski,  
*Binder-free carbon monolith cathode material for operando investigation of high performance lithium-sulfur batteries with X-ray radiography*  
**Energy Storage Materials** 9, p. 96-104 (2017)  
impact factor = 13.3
301. E. Dabah, B. Pfretzschner, Th. Schaupp, N. Kardjilov, I. Manke, R. Woracek, A. Griesche  
*Time-resolved Bragg-edge neutron radiography for observing martensitic phase transformation from austenitized super martensitic steel*  
**Journal of Applied Crystallography** 52, 6, p. 3490-3496 (2017)  
impact factor = 3.8
300. W. Zhang, D. A. Weber, H. Weigand, T. Arlt, I. Manke, D. Schröder, W. G. Zeier and J. Janek  
*Interfacial processes and microstructure of composite cathodes controlling the performance of all-solid-state lithium ion batteries*  
**ACS Applied Materials & Interfaces** 9, 21, p. 17835-17845 (2017)  
impact factor = 7.1
299. F. Salvemini, F. Grazzi, N. Kardjilov, F. Wieder, I. Manke, D. Edge, M. Zoppi  
*Combined application of imaging techniques for the characterization and authentication of ancient weapons*  
**The European Physical Journal - Plus** 132, 228, p. 1-10 (2017)
298. J.M. Yu, N. Wanderka, A. Rack, R. Daudin, E. Boller, H. Markötter, A. Manzoni, F. Vogel, T. Arlt, I. Manke, J. Banhart  
*Formation of intermetallic delta phase in Al-10Si-0.3Fe alloy investigated by in-situ 4D X-ray synchrotron tomography*  
**Acta Materialia** 129, 194-202 (2017)  
impact factor = 6.0
297. Ch. Tötze, N. Kardjilov, I. Manke, S. E. Oswald  
*Capturing 3D Water Flow in Rooted Soil by Ultra-fast Neutron Tomography*  
**Scientific Reports** 7, 6192 (2017)  
impact factor = 4.1
296. S. S. Alrwashdeh, I. Manke, H. Markötter, J. Haußmann, N. Kardjilov, A. Hilger, M. J. Kermani, M. Klages, A.M. Al-Falahat, J. Scholta, J. Banhart  
*Neutron radiographic in operando investigation of water transport in polymer electrolyte membrane fuel cells with channel barriers*  
**Energy Conversion & Management** 148, p., 604-610 (2017)  
impact factor = 6.4
295. A. J. Brooks, J. Ge. M. M. Kirka. R. R. Dehoff, H. Z. Bilheux, N. Kardjilov, I. Manke, L. G. Butler  
*Porosity detection in electron beam-melted Ti-6Al-4V using highresolution neutron imaging and grating-based interferometry*  
**Progress in Additive Manufacturing** 2, 3, p. 125-132 (2017)
294. S. Ferreira-Cardoso, R. Araújo, N.E. Martins, G.G. Martins, S. Walsh, R.M.S Martins, N. Kardjilov, I. Manke, A. Hilger, R. Castanhinha  
*Floccular complex lobes size is not a reliable proxy of ecology and behavior of fossil vertebrates*  
**Scientific Reports** 7, No. 2005, doi:10.1038/s41598-017-01981-0 (2017)  
impact factor = 4.1

293. HP Reike, A Bukejs, T Arlt, N Kardjilov, I Manke  
*Phase-contrast synchrotron microtomography reveals the internal morphology of a new fossil species of the Corticaria-sylvicola-group (Coleoptera: Latridiidae)*  
**Zootaxa** 4242, 3, p. 578-590 (2017)
292. D. Westhoff, J. Feinauer, K. Kuchler, T. Mitsch, I. Manke, S. Hein, A. Latz and V. Schmidt  
*Parametric stochastic 3D model for the microstructure of anodes in lithium-ion power cells*  
**Computational Materials Science** 126, p. 453-467 (2017)
291. F. Sun, H. Markötter, I. Manke, A. Hilger, D. Zhou, S.S. Alwashdeh, N. Kardjilov, J. Banhart  
*Complementary X-ray and neutron radiography for the investigation of the initial lithiation process of silicon-based electrode in lithium ion batteries*  
**Applied Surface Science** 399, p. 359-366 (2017)  
impact factor = 4.4
290. S.S. Alwashdeh, I. Manke, H. Markötter, J. Haußmann, T. Arlt, A. Hilger, A.M. Al-Falahat, M. Klages, J. Scholta, J. Banhart  
*Improved performance of polymer electrolyte membrane fuel cells with modified micro porous layer structures*  
**Energy Technology** 5, 9, p. 1612-1618 (2017)

### **Book contributions**

289. N. Kardjilov, E. Lehmann, M. Strobl, R. Woracek, I. Manke  
*Neutron imaging*  
in *Neutron Methods for Archeology and Cultural Heritage*, Editors: Kardjilov, Nikolay, Festa, Giulia (Eds.), ISBN 978-3-319-33163-8, DOI 10.1007/978-3-319-33163-8 (2017)

## **2016**

### **ISI journals**

288. F. Sun, L. Zielke, H. Markötter, A. Hilger, D. Zhou, R. Moroni, R. Zengerle, S. Thiele, J. Banhart, I. Manke  
*Morphological evolution of electrochemically plated/stripped lithium microstructures by synchrotron X-ray phase contrast tomography*  
**ACS Nano** 10, 8, p. 7990-7997 (2016)  
impact factor = 13.9
287. D Schröder, C L Bender, T Arlt, M Osenberg, A Hilger, S Risse, M Ballauff, I Manke and J Janek  
*In operando x-ray tomography for next-generation batteries: A systematic approach to monitor reaction product distribution and transport processes*  
**Journal of Physics D: Applied Physics** 49, 404001 (2016)
285. F. Sun, H. Markötter, D. Zhou, S.S. Alwashdeh, A. Hilger, N. Kardjilov, I. Manke, J. Banhart  
*In Situ Radiographic Investigation of (De)Lithiation Mechanisms in a Tin-Electrode Lithium-Ion Battery*  
**ChemSusChem** 9, 9, p. 946-950 (2016)  
impact factor = 7.4
284. S. Hein, J. Feinauer, D. Westhoff, I. Manke, V. Schmidt, A. Latz  
*Stochastic microstructure modeling and electrochemical simulation of lithium-ion cell anodes in 3D*  
**Journal of Power Sources** 336, p. 161-171 (2016)  
impact factor = 7.0



283. M. Strobl, B. Betz, R. P. Harti, A. Hilger, N. Kardjilov, I. Manke, C. Gruenzweig  
*Wavelength-dispersive dark-field contrast: micrometre structure resolution in neutron imaging with gratings*  
**Journal of Applied Crystallography** 49, p. 569-573 (2016)  
impact factor = 3.8
282. T. Arlt, M. Klages, M. Messerschmidt, J. Scholta, I. Manke  
*Influence of Artificial GDL Ageing on the Water Management of PEM Fuel Cells Analyzed with In-operando Synchrotron Imaging*  
**Energy** 118, p. 502-511 (2016)  
impact factor = 4.5
281. R. Moroni, M. Börner, L. Zielke, M. Schroeder, S. Nowak, M. Winter, I. Manke, R. Zengerle, S. Thiele  
*Multi-Scale Correlative Tomography of a Li-Ion Battery Composite Cathode*  
**Scientific Reports** 6, 30109, DOI:10.1038/srep30109 (2016)  
impact factor = 4.1
280. M. Fazeli, J. Hinebaugh, Z. Fishman, Ch. Tötze, W. Lehnert, I. Manke, A. Bazylak  
*Pore Network Modeling to Explore the Effects of Compression on Liquid Water Transport in Polymer Electrolyte Membrane Fuel Cell Gas Diffusion Layers*  
**Journal of Power Sources** 335, p. 162-171 (2016)  
impact factor = 7.0
279. Ch. Netzeband, T. Arlt, K. Wippermann, W. Lehnert, I. Manke  
*Three-dimensional multiscale analysis of degradation of nano- and micro-structure in direct methanol fuel cell electrodes after methanol starvation*  
**Journal of Power Sources** 327, p. 481-487 (2016)  
impact factor = 7.0
278. S. Zavareh, A. Hilger, K. Hirselandt, O. Goerke, I. Manke, J. Banhart, A. Gurlo  
*Fabrication and electrochemical performance of cellular and lamellar LiFePO<sub>4</sub>/C cathodes for Li-ion batteries*  
**Journal of the Ceramic Society of Japan** 124, 10, p. 1067-1071 (2016)
277. S. Chevalier, M. Fazeli, F. Mack, S. Galbiati, I. Manke, A. Bazylak, R. Zeis  
*Pore scale modelling of phosphoric acid leaching in the gas diffusion electrode of high temperature polymer electrolyte membrane fuel cells*  
**Electrochimica Acta** 212, 187-194 (2016)  
impact factor = 5.1
276. D. Schröder, C. L. Bender, M. Osenberg, A. Hilger, I. Manke, J. Janek  
*Visualizing Current-Dependent Morphology and Distribution of Discharge Products in Sodium-Oxygen Battery Cathodes*  
**Scientific Reports** 6, 24288 (2016)  
impact factor = 4.1
275. N. Kardjilov, A. Hilger, I. Manke, R. Woracek, J. Banhart  
*CONRAD-2: the new neutron imaging instrument at the Helmholtz-Zentrum Berlin*  
**Journal of Applied Crystallography** 49, p. 195-202 (2016)  
impact factor = 3.8
274. F. Sun, H. Markötter, I. Manke, A. Hilger, N. Kardjilov  
*Characterization of Lithium Ion Batteries with in Situ X-Ray Tomography and Radiography*  
**ECS Transactions**, 72, 8, p. 3-11 (2016)
273. S.S. Alrwashdeh, H. Markötter, J. Haußmann, J. Scholta, A. Hilger, I. Manke  
*X-ray tomographic investigation of water distribution in polymer electrolyte membrane fuel cells with different gas diffusion media*  
**ECS Transactions**, 72, 8, p. 99-106 (2016)
272. L. Zielke, F. Sun, H. Markötter, A. Hilger, R. Moroni, R. Zengerle, S. Thiele, J. Banhart, I. Manke  
*Synchrotron X-ray Tomographic Study of a Silicon Electrode Before and After Discharge and the Effect of Cavities on Particle Fracturing*  
**ChemElectroChem** 3, 7, p. 1170-1177 (2016)  
impact factor = 4.1

271. S.S. Alrwashdeh, H. Markötter, J. Haußmann, T. Arlt, M. Klages, J. Scholta, J. Banhart, I. Manke,  
*Investigation of water transport dynamics in polymer electrolyte membrane fuel cells based on high porous micro porous layers*  
**Energy** 102, p. 161-165 (2016)  
impact factor = 4.5
270. A. Isaac, R. Conti, C. M. Viana, F. Sket, L.A. Montoro, A. Hilger, I. Manke  
*Exploring biomass deconstruction by phase-contrast tomography*  
**Industrial Crops and Products** 86, p. 289-294 (2016)  
impact factor = 3.8
269. S. Risse, C. J. Jafta, Y. Yang, N. Kardjilov, A. Hilger, I. Manke, M. Ballauff  
*Multidimensional operando analysis of macroscopic structure evolution in lithium sulfur cells by X-ray radiography*  
**Physical Chemistry Chemical Physics** 18, p. 10630-10636 (2016)  
impact factor = 4.5
268. D. Froning, J. Yu, G. Gaiselmann, U. Reimer, I. Manke, V. Schmidt, W. Lehnert  
*Impact of compression on gas transport in non-woven gas diffusion layers of high temperature polymer electrolyte fuel cells*  
**Journal of Power Sources** 318, p. 26-34 (2016)  
impact factor = 7.0
267. J. Kätzel, H. Markötter, T. Arlt, M. Klages, J. Hausmann, M. Messerschmidt, N. Kardjilov, J. Scholta, J. Banhart, I. Manke  
*Effect of ageing of gas diffusion layers on the water distribution in flow field channels of polymer electrolyte membrane fuel cells*  
**Journal of Power Sources** 301, p. 386-391 (2016)  
impact factor = 7.0
266. F. Sun, H. Markötter, K. Dong, I. Manke, A. Hilger, N. Kardjilov, J. Banhart  
*Investigation of failure mechanisms in silicon based half cells during the first cycle by micro X-ray tomography and radiography*  
**Journal of Power Sources** 321, p. 174-184 (2016)  
impact factor = 7.0
265. F.H. Kim, D. Penumadu, N. Kardjilov, I. Manke  
*High Resolution X-ray and Neutron Tomography of Partially Saturated Granular Materials Subjected to Projectile Penetration*  
**International Journal of Impact Engineering** 89, p. 72-82 (2016)  
impact factor = 3.3
264. S. Gößling, M. Klages, J. Hausmann, P. Beckhaus, M. Messerschmidt, T. Arlt, N. Kardjilov, I. Manke, J. Scholta, A. Heinzl  
*Analysis of liquid water formation in polymer electrolyte membrane (PEM) fuel cell flow fields with a dry cathode supply*  
**Journal of Power Sources** 306, p. 658-665 (2016)  
impact factor = 7.0
263. F. Sun, H. Markötter, I. Manke, T. Arlt, A. Hilger, Ch. Tötze, N. Kardjilov, J. Banhart  
*Three-Dimensional Visualization of Gas Evolution and Channel Formation inside a Lithium-Ion Battery*  
**ACS Applied Materials & Interfaces** 8, 11, p. 7156–7164 (2016)  
impact factor = 7.1
262. Ch. Tötze, W. Lehnert, J. Bohner, G. Gaiselmann, V. Schmidt, J. Banhart, I. Manke  
*Influence of hydrophobic treatment on the structure of compressed gas diffusion layers*  
**Journal of Power Sources** 324, p. 625-636 (2016)  
impact factor = 7.0
- Miscellaneous publications**
261. N. Kardjilov, A. Hilger, I. Manke  
*Influence of hydrophobic treatment on the structure of compressed gas diffusion layers*  
Journal of large-scale research facilities, 2, A98 (2016)

## 2015

### ISI journals

259. L. Zielke, T. Hutzenlaub, D. R. Wheeler, C. W. Chao, I. Manke, A. Hilger, N. Paust, R. Zengerle, S. Thiele  
*Three-phase multiscale modeling of a LiCoO<sub>2</sub> cathode – Combining the advantages of FIB-SEM imaging and X-ray tomography*  
**Advanced Energy Materials** 5, 5, p. 1401612 (2015)  
impact factor = 21.9
258. T. Arlt, A. Schröder, K. Heyne, K. Wippermann, I. Manke  
*In-Operando Investigation of the humidity condition and the swelling of a Nafion-based membrane in a DMFC with synchrotron X-ray Imaging*  
**Journal of Power Sources** 97, p. 83-89 (2015)  
impact factor = 7.0
257. A. Isaac, V. Barboza, F. Sket, J R M D`Almeida, L.A. Montoro, A. Hilger, I. Manke  
*Towards a deeper understanding of structural biomass recalcitrance from phase-contrast tomography*  
**Biotechnology for Biofuels** 8, 40 doi:10.1186/s13068-015-0229-8 (2015)  
impact factor = 5.5
256. A. Kupsch, A. Lange, M.P. Hentschel, S. Lueck, V. Schmidt, R. Grothausmann, A. Hilger, I. Manke  
*Improved Missing Wedge Tomography by Novel Iterative Algorithm*  
**Journal of Microscopy**, 261, 1, p. 36-45 (2015)
255. L.M. Keller, A. Hilger, I. Manke  
*Impact of sand content on solute diffusion in Opalinus Clay*  
**Applied Clay Science** 112-113, p. 134-142 (2015)
254. M. Makowska, M. Strobl, E. M. Lauridsen, H. Lund Frandsen, A. S. Tremsin, N. Kardjilov, I. Manke, J. F. Kelleher, L. Theil Kuhn  
*Effect of external stress on NiO reduction in solid oxide fuel cells – a new application of energy resolved neutron imaging*  
**Journal of Applied Crystallography** 48, p. 401-408 (2015)  
impact factor = 3.8
253. A.R. Benetti, J. Jacobsen, B. Lenhoff, N.C.R. Momsen, D.V. Okhrimenko, M.T.F. Telling, N. Kardjilov, M. Strobl, . Seydel, I. Manke, TH.N. Bordallo  
*How mobile are protons in the structure of dental glass ionomer cements?*  
**Scientific Reports** 5, 8972 (2015)  
impact factor = 4.1
252. A. Kupsch, A. Lange, M.P. Hentschel, G.-R. Jaenisch, N. Kardjilov, Ch. Tötzke, H. Markötter, A. Hilger, I. Manke  
*X-ray Compton line scan tomography*  
**MP Materials Testing – Materials and Components, Technology and Application** 57, 11-12, p. 985-991 (2015)
251. C. Tötzke, I. Manke, G. Gaiselmann, J. Bohner, B. R. Müller, A. Kupsch, M. P. Hentschel, V. Schmidt, J. Banhart and W. Lehnert  
*A dedicated compression device for high resolution X-ray tomography of compressed gas diffusion layers*  
**Review of Scientific Instruments** 86, 4, p. 043702 (2015)
250. T. Arlt, W. Lüke, N. Kardjilov, J. Banhart, W. Lehnert, I. Manke  
*Monitoring the hydrogen distribution in poly(2,5-benzimidazole)-based (ABPBI) membranes in operating high-temperature polymer electrolyte fuel cells by using H-D contrast neutron imaging*  
**Journal of Power Sources** 299, p. 125-129 (2015)  
impact factor = 7.0

249. J. Feinauer, T. Brereton, A. Spetl, M. Weber, I. Manke, V. Schmidt,  
*Stochastic 3D modeling of the microstructure of lithium-ion battery anodes via Gaussian random fields on the sphere*  
**Computational Materials Science** 109, p. 137-146 (2015)
248. A. S. Tremsin, N. Kardjilov, M. Strobl, I. Manke, A. Hilger, J. B. McPhate, J. V. Vallerger, O. H. W. Siegmund, W. B. Feller  
*Imaging of dynamic magnetic fields with spin-polarized neutron beams*  
**New Journal of Physics** 17, 043047 (2015)  
impact factor = 3.6
247. K. Herbrig, C. Pohlmann, Ł. Gondek, H. Figiel, N. Kardjilov, A. Hilger, I. Manke, J. Banhart, B. Kieback, and L. Röntzsch  
*Investigations of the Structural Stability of Metal Hydride Composites by In-situ Neutron Imaging*  
**Journal of Power Sources** 293, pp. 109-118 (2015)  
impact factor = 7.0
246. M.A. Hoeh, T. Arlt, I. Manke, J. Banhart, D.L. Fritz, W. Maier, W. Lehnert  
*In-operando synchrotron X-ray radiography studies of polymer electrolyte membrane water electrolyzers*  
**Electrochemistry Communications** 55, p. 55-59 (2015)  
impact factor = 4.8
245. M. A. Hoeh, T. Arlt, N. Kardjilov, I. Manke, J. Banhart, D. L. Fritz, J. Ehlert, W. Lüke, and W. Lehnert  
*In-operando Neutron Radiography Studies of Polymer Electrolyte Membrane Water Electrolyzers*  
**ECS Transactions** 69, 17, p. 1135-1140 (2015)
244. J. Haußmann, F. Wilhelm, S. Enz, M. Klages, A. Pournemat, Ch. Bergbreiter, J. S. Clark, K.P. Duraisamy, K. Seidenberger, H. Markötter, I. Manke, J. Scholta  
*GDL and MPL Characterization and their relevance to Fuel Cell Modelling*  
**ECS Transactions** 69, 17, p. 1279-1291 (2015)
243. M. Happach, M. Osenberg, A. Hilger, N. Kardjilov, Ch. Kallfaß, F. Wieder, Ch. Hoch, I. Manke  
*Investigation of three-dimensional structural changes in LiFePO<sub>4</sub> batteries by means of X-ray tomography*  
**MP Materials Testing – Materials and Components, Technology and Application** 57, 10, p. 872-876 (2015)
242. H. Markötter, K. Dittmann, J. Haußmann, R. Alink, D. Gerteisen, H. Riesemeier, J. Scholta, J. Banhart, I. Manke  
*Influence of local carbon fibre orientation on the water transport in the gas diffusion layer of polymer electrolyte membrane fuel cells*  
**Electrochemistry Communications** 51, p. 133-136 (2015)  
impact factor = 4.8
241. F. Salvemini, F. Grazi, N. Kardjilov, I. Manke, F. Civita, M. Zoppi.  
*Neutron computed laminography on ancient metal artefacts*  
**Analytical Methods** 7, p. 271-278 (2015)
240. F. Kim, D. Penumadu, J. Gregor, M. Marsh, N. Kardjilov, and I. Manke  
*Characterizing Partially Saturated Compacted-Sand Specimen Using 3D Image Registration of High-Resolution Neutron and X-Ray Tomography*  
**Journal of Computing in Civil Engineering**, 04014096  
[http://dx.doi.org/10.1061/\(ASCE\)CP.1943-5487.0000424](http://dx.doi.org/10.1061/(ASCE)CP.1943-5487.0000424) (2015)
239. N. Kardjilov, A. Hilger, V. Benfante, F. Lo Celso, I. Ruffo, I. Manke, S. Tusa, R. Triolo  
*Neutron Tomography in Archaeology*  
**MP Materials Testing – Materials and Components, Technology and Application** 57, 4, p. 324-328 (2015)

238. C. Pohlmann, K. Herbrig, L. Gondek, N. Kardjilov, A. Hilger, H. Figiel, J. Banhart, B. Kieback, I. Manke and L. Röntzsch  
*In operando visualization of hydride-graphite composites during cyclic hydrogenation by high-resolution neutron imaging*  
**Journal of Power Sources**, 277, p. 360-369 (2015)  
impact factor = 7.0
237. K. Nakano, W. Herppich, N. Kardjilov, I. Manke, A. Hilger, M. Dawson, K. Masuda, Y. Hara, U. Matsushima  
*Structure investigation of soil aggregates treated with different organic matter using X-ray micro tomography*  
**MP Materials Testing – Materials and Components, Technology and Application**, 57, 3, p. 234-238 (2015)
236. W. B. Herppich U. Matsushima, W. Graf, S. Zabler, M. Dawson, G. Choinka, I. Manke  
*Synchrotron X-ray CT of rose peduncles – evaluation of tissue damage by radiation*  
**MP Materials Testing – Materials and Components, Technology and Application** 57, 1, p. 59-63 (2015)
235. J. Feinauer, A. Spetl, I. Manke, A. Kwade, A. Pott and V. Schmidt  
*Structural Characterization of Particle Systems using Spherical Harmonics*  
**Materials Characterization** 106, p. 123-133 (2015)
234. S. Pardo-Alonso, E. Solórzano, J. Vicente, L. Brabant, L. Van Hoorebeke, I. Manke, A. Hilger, E. Laguna, M.A. Rodríguez Pérez  
*μCT-based analysis of the solid phase in foams: cell wall corrugation and other practical microscopic features*  
**Microscopy and Microanalysis** 21, 5, p. 1361-1371 (2015)
233. A. Hilger, N. Kardjilov, I. Manke, C. Zandler, K. Lieutenant, K. Habicht, J. Banhart, M. Strobl  
*Neutron transport optimisation of TOF imaging instrument for ESS*  
**Optics Express**, 23, 1, p. 301-311 (2015)  
impact factor = 3.3
232. E. Härk, M. Russina, N. Kardjilov, I. Manke, A. Hilger, R. Jäger, I. Tallo, T. Thomberg, H. Kurig, and E. Lust  
*Different Carbide Derived Nanoporous Carbon Supports and Electroreduction of Oxygen*  
**ECS Transactions** 66, 24, p. 69-80 (2015)
231. L. Zielke, C. Barchasz, S. Waluś, F. Alloin, J.-C. Leprêtre, A. Spetl, V. Schmidt, A. Hilger, I. Manke, J. Banhart, R. Zengerle, S. Thiele  
*Degradation of Li/S Battery Electrodes Studied using X-ray Phase Contrast Tomography*  
**Scientific Reports** 5, 10921 (2015)  
impact factor = 4.1

### **Miscellaneous publications**

230. I. Manke, H. Markötter, T. Arlt, C. Tötze, M. Klages, J. Haußmann, S. Enz, F. Wieder, J. Scholta, N. Kardjilov, A. Hilger, J. Banhart  
*Fuel cell research with neutron imaging at Helmholtz Centre Berlin*  
*Physica Procedia* 69, p. 619-627 (2015)
229. N. Kardjilov, A. Hilger, I. Manke, A. Griesche, J. Banhart  
*Imaging with cold neutrons at CONRAD-2 facility*  
*Physica Procedia* 69, p. 60-66 (2015)
228. A. Kupsch, A. Lange, M.P. Hentschel, G.-R. Jaenisch, N. Kardjilov, Ch. Tötze, H. Markötter, A. Hilger, I. Manke  
*Compton-CT als Alternative zur Neutronentomographie?*  
Proceedings, DACH-Jahrestagung 2015, Salzburg, submitted (2015)

227. I. Manke, N. Kardjilov, R. Schäfer, A. Hilger, R. Grothausmann, M. Strobl, M. Dawson, Ch. Grünzweig, Ch. Tötzke, Ch. David, A. Kupsch, A. Lange, M. P. Hentschel, J. Banhart  
*Three-dimensional imaging of magnetic domains with neutron grating interferometry*  
*Physica Procedia* 69, p. 404-412 (2015)
226. A. Griesche, E. Dabah, T. Kannengiesser, A. Hilger, N. Kardjilov, I. Manke, B. Schillinger  
*Measuring hydrogen distributions in iron and steel using neutrons*  
*Physica Procedia* 69, p. 445-450 (2015)
225. A. Spies, M.A. Hoeh, T. Arlt, N. Kardjilov, D.L. Fritz, J. Ehlert, J. Banhart, M. Münsch, A. Delgado, A. Hahn, I. Manke, W. Lehnert  
*In-operando Neutron Radiography Studies of Polymer Electrolyte Membrane Water Electrolyzers*  
Proceedings, Fachtagung Lasermethoden in der Strömungsmesstechnik, Dresden, Germany, 8-10 September 2015, in print (2015)
224. N. Kardjilov, A. Hilger, I. Manke  
*State-of-the-art neutron imaging*  
*Neutron News* 26, 2, p. 15-18 (2015)
223. R. Woracek, D. Penumadu, N. Kardjilov, A. Hilger, M. Boin, J. Banhart, I. Manke  
*Neutron Bragg edge tomography for phase mapping*  
*Physica Procedia* 69, p. 227-236 (2015)

## 2014

### ISI journals

222. R. Woracek, D. Penumadu, N. Kardjilov, A. Hilger, M. Boin, J. Banhart, I. Manke  
*3D Mapping of Crystallographic Phase Distribution using Energy-Selective Neutron Tomography*  
**Advanced Materials** 26, p. 4069–4073 (2014)  
impact factor = 22.0
221. L. Zielke, T. Hutzenlaub, D. R. Wheeler, I. Manke, T. Arlt, N. Paust, R. Zengerle, S. Thiele  
*A Combination of X-ray Tomography and Carbon Binder Modeling - Reconstructing the Three Phases of LiCoO<sub>2</sub> Li-ion Battery Cathodes*  
**Advanced Energy Materials** 4, 8, p. 1301617 (2014)  
impact factor = 21.9
220. T. Arlt, D. Schröder, U. Krewer, I. Manke  
*Tomographic in-operando and model-based investigations of primary zinc air batteries*  
**Physical Chemistry Chemical Physics** 16, p. 22273-2228 (2014)  
impact factor = 4.5
219. A. Griesche, E. Dabah, Th. Kannengießer, N. Kardjilov, A. Hilger, I. Manke  
*3D-imaging of hydrogen blister in steel with neutron tomography*  
**Acta Materialia** 78, p. 14-22 (2014)  
impact factor = 6.0
218. G. Gaiselmann, Ch. Tötzke, J. Brinkmann, I. Manke, W. Lehnert, V. Schmidt  
*3D microstructure modeling of compressed fiber-based materials*  
**Journal of Power Sources** 257, p. 52-64 (2014)  
impact factor = 7.0
217. D. Schröder, T. Arlt, U. Krewer, I. Manke  
*Analyzing transport paths in the air electrode of a zinc air battery using X-ray tomography*  
**Electrochemistry Communications** 40, p. 88-91 (2014)  
impact factor = 4.8

216. T. Arlt, W. Maier, I. Manke, W. Lehnert, Ch. Wannek, H. Markötter, F. Wieder, Ch. Tötzke, D. Stolten J. Banhart  
*Synchrotron X-ray radioscopic in situ study of high-temperature polymer electrolyte fuel cells – Effect of operation conditions on structure of membrane*  
**Journal of Power Sources** 246, p. 290-298 (2014)  
impact factor = 7.0
215. D. Froning, W. Maier, J. Groß, T. Arlt, I. Manke, W. Lehnert,  
*Evaluation of structural changes of HT-PEFC electrodes from in-situ synchrotron X-ray radiographs*  
**International Journal of Hydrogen Energy** 39, p. 9447-9456 (2014)  
impact factor = 4.2
214. T. Mitsch, Y. Krämer, J. Feinauer, G. Gaiselmann, H. Markötter, I. Manke, A. Hintennach and V. Schmidt  
*Preparation and Characterization of Li-ion Graphite Anodes using Synchrotron Tomography*  
**Materials** 2014, 7(6), p. 4455-4472 (2014)
213. A. Griesche, E. Dabah, Th. Kannengiesser, N. Kardjilov, A. Hilger, I. Manke  
*Imaging of hydrogen in steels using neutrons*  
**International Journal of Materials Research** 105, 7, p. 640-644. (2014)
212. A. Lange, M.P. Hentschel, A. Kupsch, A. Hilger, I. Manke, S. Lueck, V. Schmidt, R. Grothausmann  
*Reduzierung von Missing-Wedge- Artefakten mit DIRECTT*  
**MP Materials Testing – Materials and Components, Technology and Application** 56, 9, p. 716-721 (2014)
211. F. Wieder, Ch. Kallfaß, C. Tötzke, C. Hoch, H. Schier, K. Graf, A. Hilger, J. Banhart, I. Manke  
*X-ray tomographic investigation of a commercial Lithium-ion capacitor*  
**MP Materials Testing – Materials and Components, Technology and Application** 56, 9, p. 722-727 (2014)
210. R. Triolo, F. Lo Celso, P. Tisseyre, N. Kardjilov, F. Wieder, A. Hilger, I. Manke  
*Neutron tomography of ancient lead ingots*  
**Analytical Methods** 6, p. 2390-2394 (2014)
209. R. Triolo, G. Giambona, F. Lo Celso, I. Ruffo, N. Kardjilov, A. Hilger, A. Paulke, I. Manke  
*Investigation of Wood Materials by Combined Application of X-ray and Neutron Imaging Techniques*  
**MP Materials Testing – Materials and Components, Technology and Application**, 56, 3, p. 224-229 (2014)
208. E. Solórzano, S. Pardo-Alonso, N. Kardjilov, I. Manke, F. Wieder, F. García-Moreno and M.A. Rodríguez-pérez  
*Comparison between Neutron Tomography and X-ray CT Tomography: a Study on Polymer Foams*  
**Nuclear Instruments and Methods in Physics Research A** 324, p. 29-34 (2014)
207. C. Tötzke, G. Gaiselmann, M. Osenberg, J. Bohner, T. Arlt, H. Markötter, A. Hilger, F. Wieder, A. Kupsch, B.R. Müller, M. P. Hentschel, J. Banhart, V. Schmidt, W. Lehnert and I. Manke  
*Three-dimensional Study on Compressed Gas Diffusion Layers using Synchrotron X-ray Imaging*  
**Journal of Power Sources** 253, p. 123-131 (2014)  
impact factor = 7.0
206. T. Arlt, M. Klages, M. Messerschmidt, J. Scholta, J. Banhart, I. Manke  
*Influence of Artificial Ageing of Gas Diffusion Layers on the Water Management of Polymer Electrolyte Fuel Cells*  
**ECS Electrochemistry Letters** 3, 2, p. F7-F9 (2013)

205. A. Schröder, K. Wippermann, T. Arlt, T. Sanders, T. Baumhöfer, N. Kardjilov, A. Hilger, J. Mergel, W. Lehnert, D. Stolten, J. Banhart, I. Manke  
*Neutron radiography and current distribution measurements for studying the influence of the cathode flow field properties on the water distribution and performance of direct methanol fuel cells*  
**International Journal of Energy Research** 38, 7, p. 926-943 (2014)

### **Miscellaneous publications**

204. N. Kardjilov, A. Hilger, I. Manke, J. Banhart  
*CONRAD-2: The neutron imaging instrument at HZB*  
 Neutron News 25, 2, p. 23-26 (2014)
203. A. Siriruk, R. Woracek, S. B. Puplampu, D. Penumadu, P. Withers, T. Lowe, N. Kardjilov, I. Manke  
*Size Effects in Testing of Carbon Fiber Vinyl Ester Laminate For Marine Application and Damage Evolution*  
 Proceedings of the American Society for Composites 2014 - Twenty-ninth Technical Conference on Composite Materials, Paper Number 537, p. 1-14, ISBN: 978-1-60595-124-9 (2014)
202. F. Kim, D. Penumadu, J. Gregor, N. Kardjilov, I. Manke, V.P. Schulz and A. Wiegmann  
*Nondestructive Visualization and Quantification of 3-D Microstructure of Granular Materials and Direct Numerical Simulations*  
 Proceedings Geo-Congress 2014 Technical Papers  
<http://dx.doi.org/10.1061/9780784413272.069>, ISBN (print): 978-0-7844-1327-2, p. 713-722, (2014)
201. A. Kupsch, A. Lange, M.P. Hentschel, S. Lueck, V. Schmidt, R. Grothausmann, A. Hilger, I. Manke  
*Reduzierung von Missing-Wedge-Artefakten mit DIRECTT*  
 Proceedings DGZfP-Jahrestagung 2014, P18, p. 1-8  
<http://jt2014.dgzfp.de/portals/jt2014/BB/p18.pdf> (2014)
200. A. Lange, M.P. Hentschel, A. Kupsch, G.-R. Jaenisch, N. Kardjilov, Ch. Tötzke, H. Markötter, A. Hilger, I. Manke  
*X-ray Compton tomography*  
 Proceedings, 11th European Conference on Non-Destructive Testing (ECNDT 2014), Prague, P 175, p. 1-9,  
[http://www.ndt.net/events/ECNDT2014/app/content/Paper/175\\_Lange\\_Rev4.pdf](http://www.ndt.net/events/ECNDT2014/app/content/Paper/175_Lange_Rev4.pdf) (2014)

## **2013**

### **ISI journals**

199. J.R. Bunn, D. Penumadu, R. Woracek, N. Kardjilov, A. Hilger, I. Manke, S. Williams  
*Detection of water with high sensitivity to study PEM fuel cell membranes using cold neutrons at high spatial resolution*  
**Applied Physics Letters** 102, p. 234102 (2013)  
 impact factor = 3.8
198. H. Markötter, J. Haußmann, R. Alink, T. Arlt, C. Tötzke, M. Klages, J. Scholta, D. Gerteisen, J. Banhart, I. Manke  
*Visualization of the Influence of Cracks in the Micro Porous Layer on the Water Distribution in a Polymer Electrolyte Membrane Fuel Cell by means of Synchrotron Radiography*  
**Electrochemistry Communications** 34, p. 22-24 (2013)  
 impact factor = 4.8



197. R. Alink, J. Haussmann, H. Markötter, M. Schwager, A. Spadinger, I. Manke, D. Gerteisen  
*The Influence of Porous Transport Layer Modifications on the Water Management in PEM Fuel Cells*  
**Journal of Power Sources** 233, p. 358-368 (2013)  
impact factor = 7.0
196. K. Seidenberger, F. Wilhelm, J. Haußmann, H. Markötter, I. Manke, J. Scholta  
*Grand Canonical Monte Carlo Study on Water Agglomerations within a PEMFC GDL*  
**Journal of Power Sources** 239, p. 628-641 (2013)  
impact factor = 7.0
195. M. Klages, H. Markötter, S. Enz, I. Manke, N. Kardjilov, J. Scholta  
*Investigations on Dynamic Water Transport Characteristics in Flow Field Channels using Neutron Imaging Techniques*  
**Journal of Power Sources** 239, p. 596-603 (2013)  
impact factor = 7.0
194. A. Bauder, K. A. Friedrich, J. Haußmann, H. Markötter, I. Manke, R. Alink and J. Scholta  
*Investigation of fuel cell materials and liquid water transport by means of synchrotron imaging*  
**ECS Transactions** 58, 1, p. 1391-1399 (2013)
193. T. Arlt, M. Klages, I. Manke, M. Messerschmidt, H. Riesemeier, A. Hilger, J. Scholta and J. Banhart  
*Influence of Artificial Aging of Gas Diffusion Layers on the Water Management of PEM Fuel Cells*  
**ECS Transactions** 53, 30, p. 21-28 (2013)
192. F. Wieder, Ch. Kallfaß, I. Manke, A. Hilger, Ch. Tötze, C. Hoch, H. Schier, K. Graf, and J. Banhart,  
*Electrolyte distribution and discharge time – a combined study of X-ray tomography and electrical measurements of a Li-Ion-Capacitor*  
**ECS Transactions** 53, 30, p. 211-218 (2013)
191. S. Enz, M. Klages, C. Bergbreiter, M. Messerschmidt, H. Markötter, N. Kardjilov, I. Manke and J. Scholta  
*Investigation on Dynamic Water Transport of PEMFCs combining Neutron Radiography and CFD Simulation*  
**ECS Transactions** 51, 1, p. 215-226 (2013)
190. H. Markötter, T. Arlt, Ph. Krüger, J. Haussmann, M. Klages, J. Scholta, H. Riesemeier, J. Banhart, I. Manke,  
*Synchrotron radiography and tomography of a PEM fuel cell*  
**MP Materials Testing – Materials and Components, Technology and Application** 55, 5, p. 355-360 (2013)
189. T. Arlt, R. Grothausmann, I. Manke, H. Markötter, Ph. Krüger, J. Hausmann, A. Hilger, N. Kardjilov, Ch. Hartnig, A. Kupsch, A. Lange, M. P. Hentschel, Ch. Tötze, K. Wippermann, J. Banhart  
*Tomographic methods for fuel cells research*  
**MP Materials Testing – Materials and Components, Technology and Application** 55, 3, p. 207-213 (2013)
188. K. Heim, G.S. Vinod-Kumar, F. Garcia-Moreno, I. Manke, J. Banhart  
*Drainage of particle-stabilised aluminium composites through single films and Plateau borders*  
**Colloids and Surfaces A: Physicochemical and Engineering Aspects** 438, p.85-92 (2013)
187. H. Markötter, J. Haußmann, R. Alink, K. Dittmann, C. Tötze, P. Krüger, M. Klages, T. Arlt, H. Riesemeier, J. Scholta, D. Gerteisen, I. Manke, J. Banhart  
*Investigation of fuel cell materials and liquid water transport by means of synchrotron imaging*  
**ECS Transactions** 45, 29, p. 195-202 (2013)

186. Ch. Tötze, A. Roth-Nebelsick, W. Konrad, T. Miranda, J. Gout, N. Kardjilov, M. Dawson, I. Manke  
*Visualization of embolism formation in the xylem of liana plant using neutron radiography*  
**Annals of Botany** 111, 4, p. 723-730 (2013)  
 impact factor = 3.6
185. O. Stenzel, D. Westhoff, I. Manke, D.P. Kroese and V. Schmidt  
*Graph-based simulated annealing: A hybrid approach to stochastic modeling of complex microstructures*  
**Modelling and Simulation in Materials Science and Engineering** 21, 5, 055004,  
 doi:10.1088/0965-0393/21/5/055004 (2013)
184. G. Gaiselmann, D. Froning, Ch. Tötze, Ch. Quick, I. Manke, W. Lehnert and V. Schmidt  
*Stochastic 3D modeling of non-woven materials with wet-proofing agent*  
**International Journal of Hydrogen Energy** 38, 20, p. 8448-8460 (2013)  
 impact factor = 4.2
183. F. Kim, D. Penumadu, J. Gregor, N. Kardjilov, and I. Manke  
*High Resolution Neutron and X-ray Imaging of Granular Materials*  
**ASCE Journal of Geotechnical and Geoenvironmental Engineering**
182. J. Haußmann, H. Markötter, R. Alink, A. Bauder, K. Dittmann, D. Gerteisen, I. Manke, J. Scholta  
*Synchrotron radiography and tomography of the water transport in perforated Gas Diffusion Media*  
**Journal of Power Sources** 239, p. 611-622 (2013)  
 impact factor = 7.0
181. U. Matsushima, W. Graf, S. Zabler, I. Manke, M. Dawson, G. Choinka, A. Hilger and W. B. Herppich  
*3D-analysis of plant microstructures: advantages and limitations of synchrotron X-ray microtomography*  
**International Agrophysics** 27, p. 23-30 (2013)
180. A. Schröder, K. Wippermann, J. Mergel, W. Lehnert, D. Stolten, T. Sanders, T. Baumhöfer, T. Arlt, J. Banhart, I. Manke  
*Investigation of Water Evolution in DMFC Cathodes with Synchrotron Radiography*  
**Fuel Cells** 13, 3, p. 371–379 (2013)
179. T. Arlt, I. Manke, K. Wippermann, H. Rieseemeier, J. Mergel, J. Banhart  
*Investigation of the local catalyst distribution in an aged direct methanol fuel cell MEA by means of differential synchrotron X-ray absorption edge imaging with high energy resolution*  
**Journal of Power Sources** 221, p. 210-216 (2013)  
 impact factor = 7.0
178. A. Schröder, K. Wippermann, T. Arlt, T. Sanders, T. Baumhöfer, N. Kardjilov, J. Mergel, W. Lehnert, D. Stolten, J. Banhart, I. Manke  
*In-plane Neutron Radiography for Studying the Influence of Surface Treatment and Design of Cathode Flow Fields in Direct Methanol Fuel Cells*  
**International Journal of Hydrogen Energy** 38, 5, p. 2443-2454 (2013)  
 impact factor = 4.2
177. C. Jiménez, F. Garcia-Moreno, B. Pfretzschner, P. Kamm, T. R. Neu, M. Klaus, Ch. Genzel, A. Hilger, I. Manke, J. Banhart  
*Metal foaming studied in-situ by energy dispersive X-ray diffraction of synchrotron radiation, X-ray radioscopy, and optical imaging*  
**Advanced Engineering Materials** 15, 3, p. 141-148 (2013)
176. G. Gaiselmann, I. Manke, W. Lehnert, V. Schmidt  
*Single Fiber Extraction of 3D Image Data*  
**Image Analysis & Stereology** 32, 1, p. 57-63 (2013)

### **Miscellaneous publications**

175. R. Woracek, J.R. Bunn, D. Penumadu, A. Tremsin, A. Siriruk, N. Kardjilov, I. Manke, M. Boin, A. Hilger, C.R. Hubbard, B. Clausen and T.A. Sisneros  
*Measurement of hkl Strains under Complex Loading Paths and Methodology for Combined Neutron Diffraction and Bragg Edge Imaging*  
MRS Proceedings 1528, p. 1-12, <http://dx.doi.org/10.1557/opl.2013.571> (2013)
174. E. Solórzano, S. Pardo-Alonso, N. Kardjilov, I. Manke, F. Wieder, F. García-Moreno and M.A. Rodríguez-pérez  
*Comparison between Neutron and X-ray Tomography: A Study on Polymer Foams*  
Proceedings, 1st international conference on tomography of materials and structures ICTMS 2013, July 1-5 (Ghent, Belgium), p. 65-68, in "Tomography of materials and structures", editor: Veerle Cnudde, ISBN 9789461971302, <http://hdl.handle.net/1854/LU-4209930> (2013)
173. R. Fernández Gutiérrez, G. Requena, B. Stauder, E. Maire, A. Isaac, E. Boller, M. Schell, I. Manke  
*3D-Characterization of AlCu4.5Mg0.3 and AlCu7 Alloys*  
Proceedings, 1st international conference on tomography of materials and structures ICTMS 2013, July 1-5 (Ghent, Belgium), p. 151-154, in "Tomography of materials and structures", editor: Veerle Cnudde, ISBN 9789461971302, [http://www.ictms.ugent.be/downloads/talks\\_def\\_def.pdf](http://www.ictms.ugent.be/downloads/talks_def_def.pdf) (2013)
172. F. Kim, D. Penumadu, N. Kardjilov, I. Manke  
*High Resolution Neutron Imaging of Multi-phase Fluid Flow through Compacted Porous Media*  
Proceedings, 1st international conference on tomography of materials and structures ICTMS 2013, July 1-5 (Ghent, Belgium), p. 151-154, in "Tomography of materials and structures", editor: Veerle Cnudde, ISBN 9789461971302, [http://www.ictms.ugent.be/downloads/talks\\_def\\_def.pdf](http://www.ictms.ugent.be/downloads/talks_def_def.pdf) (2013)
171. A. Griesche, E. Dabah, A. Hilger, N. Kardjilov, I. Manke, Th. Kannengiesser  
*Neutron Imaging of Hydrogen in Steels*  
Proceedings, Materials Science & Technology 2013 Conference, Quebec, Canada, p. 945-950, ISBN 978-0-87339-762-9 (2013)

## **2012**

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170. H. Markötter, I. Manke, R. Kuhn, T. Arlt, N. Kardjilov, M. P. Hentschel, A. Kupsch, A. Lange, C. Hartnig, J. Scholta, J. Banhart  
*Neutron tomographic investigations of water distributions in polymer electrolyte membrane fuel cell stacks*  
**Journal of Power Sources** 219, p. 120-125 (2012)  
impact factor = 7.0
169. N. Kardjilov, I. Manke, A. Hilger, S. Williams, M. Strobl, R. Woracek, M. Boin, E. Lehmann, D. Penumadu, J. Banhart  
*Neutron Bragg-edge mapping of weld seams*  
**International Journal of Materials Research** 2012, 2, p. 151-154 (2012)
168. M. Strobl, J. Plomp, A.S. Tremsin, A. Hilger, F. Wieder, N. Kardjilov, I. Manke, W.G. Bouwman  
*TOF-SEMSANS - Time-of-flight spin-echo modulated small angle neutron scattering*  
**Journal of Applied Physics** 112, 014503 (2012)
167. M. Strobl, F. Wieder, C. Duif, A. Hilger, N. Kardjilov, I. Manke, W.G. Bouwman  
*Using a grating analyser for SEMSANS investigations in the very small angle range*  
**Physica B: Condensed Matter** 407, 21, p. 4132-4135 (2012)

166. S.H. Williams, A. Hilger, N. Kardjilov, I. Manke, M. Strobl, P.-A. Douissard, T. Martin, H. Rieseemeier, J. Banhart  
*Detection Equipment for Micro imaging with Neutrons*  
**Journal of Instrumentation** 7, P02014, p.1-25 (2012)
165. H. Markötter, R. Alink, J. Haußmann, K. Dittmann, T. Arlt, F. Wieder, C. Tötzke, M. Klages, C. Reiter, H. Rieseemeier, J. Scholta, D. Gerteisen, J. Banhart, I. Manke  
*Visualization of the water distribution of perforated gas diffusion layers by means of synchrotron X-ray radiography*  
**International Journal of Hydrogen Energy** 37, 9, p. 7757-7761 (2012)  
impact factor = 4.2
164. C. Hoch, H. Schier, Ch. Kallfass, Ch. Tötzke, A. Hilger, I. Manke  
*Electrode deterioration processes in lithium ion capacitors monitored by in situ X-ray radiography on micrometre scale*  
**Micro & Nano Letters** 7, 3, p. 262-264 (2012)
163. M. Salzer, A. Spetl, O. Stenzel, J.-H Smatt, M. Linden, I. Manke, V. Schmidt  
*A two-stage approach to the segmentation of FIB-SEM images of highly porous materials*  
**Materials Characterization** 69, p. 115-126, (2012)
162. H. Markötter, I. Manke, J. Haußmann, T. Arlt, M. Klages, P. Krüger, C. Hartnig, J. Scholta, H. Rieseemeier, B. Müller, J. Banhart  
*Combined synchrotron X-ray radiography and tomography study on the water transport in gas diffusion layers*  
**Micro & Nano Letters** 7, p. 689-692 (2012)
161. G. Gaiselmann, R. Thiedmann, I. Manke, W. Lehnert and V. Schmidt  
*Stochastic 3D Modeling of Fiber-Based Materials*  
**Computational Materials Science**, 59, p. 75-86 (2012)
160. A.S. Tremsin, E.H. Lehmann, N. Kardjilov, M. Strobl, I. Manke, J.B. McPhate, J.V. Vallerga, O.H.W. Siegmund, W.B. Feller  
*Refraction contrast imaging and edge effects in neutron radiography*  
**Journal of Instrumentation** 7, C02047, 1-9 (2012)
159. U. Matsushima, A. Hilger, W. Graf, S. Zabler, I. Manke, M. Dawson, G. Choinka and W. B. Herppich  
*Calcium oxalate crystals distribution in rose peduncles; non-invasive analysis by synchrotron X-ray micro-tomography*  
**Postharvest Biology and Technology** 72, p. 27-34 (2012)  
impact factor = 3.1
158. R. Kuhn, Ph. Krüger, S. Kleinau, M. Dawson, J. Geyer, M. Roscher, I. Manke, Ch. Hartnig  
*Dynamic fuel cell gas humidification system*  
**International Journal of Hydrogen Energy** 37, 9, p. 7702-7709 (2012)  
impact factor = 4.2
157. W. Maier, T. Arlt, K. Wippermann, C. Wannek, I. Manke, W. Lehnert, D. Stolten,  
*Investigation of HT-PEFCs by Means of Synchrotron X-ray Radiography and Electrochemical Impedance Spectroscopy*  
**Journal of the Electrochemical Society** 159, 8, p. F398-F404 (2012)  
impact factor = 3.7
156. R. Grothausmann, S. Fiechter, R. Beare, G. Lehmann, H. Kropf, V. Kumar, I. Manke, J. Banhart  
*Algorithm for automated quantitative 3D analysis of the degree of faceting of particles in tomographic datasets*  
**Ultramicroscopy**, 122, p. 65-75 (2012)
155. M. Strobl, R. Woracek, N. Kardjilov, A. Hilger, R. Wimpory, A. Tremsin, T. Wilpert, C. Schulz, I. Manke, D. Penumadu  
*Time-of-flight neutron imaging for spatially resolved strain investigations based on Bragg edge transmission at a reactor source*  
**Nuclear Instruments and Methods in Physics Research A** 680, 11, p. 27-34 (2012)

154. C. Tötze, I. Manke, T. Arlt, H. Markötter, N. Kardjilov, A. Hilger, S. Williams, P. Krüger, R. Kuhn, C. Hartnig, J. Scholta, and J. Banhart  
*Investigation of fuel cells using scanning neutron imaging and a focusing neutron guide*  
**Nuclear Instruments and Methods in Physics Research A** 663, 1, p. 48-54 (2012)

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153. F. Kim, D. Penumadu, J. Gregor, N. Kardjilov, I. Manke, V. Schulz, A. Wiegmann  
*High Resolution Dual Modality (Neutron and X-ray) Imaging of Partially Saturated Sand and Direct Numerical Simulation Based on Realistic Microstructure*  
Proceedings, 46th US Rock Mechanics/Geomechanics Symposium, vol. 3, p. 1817-1824, Editor: A. Bobet, ARMA 12-465 (2012)
152. J. Scholta, M. Klages, S. Enz, M. Messerschmidt, H. Markötter, I. Manke  
*Investigation on Dynamic Water Transport of PEMFCs combining Neutron Radiography and CFD Simulation*  
Proceedings, Fuel Cell Seminar 2012, 5.-8. Nov. Connecticut, USA, MOT44, p. 1-5, (2012)
151. A. Kupsch, A. Lange, M.P. Hentschel, R. Grothausmann, T. Arlt, I. Manke  
*High Quality Reconstruction of Insufficient Tomographic Data by a New Iterative Procedure*  
Proceedings, 18th World Conference on Nondestructive Testing, 16-20 April 2012, Durban, South Africa, ISBN 978-0-620-52872-6, no. 207, p. 1-9 (2012)
150. A. Kupsch, A. Lange, M.P. Hentschel, S. Lueck, V. Schmidt, A. Hilger, F. Garcia-Moreno, I. Manke  
*Reconstruction of Limited View Tomography Data by DIRECTT*  
Proceedings, 18th World Conference on Nondestructive Testing, 16-20 April 2012, Durban, South Africa, ISBN 978-0-620-52872-6, no. 208, p. 1-8 (2012)
149. G. Gaiselmann, I. Manke, W. Lehnert, V. Schmidt  
*Single Fiber Extraction of 3D Image Data*  
Conference Proceeding, "Forum Bildverarbeitung" 2012, KIT Scientific Publishing, Karlsruhe, 119-130 (2012)
148. A. Spettl, M. Linden, I. Manke, V. Schmidt  
*3D Structural Characterization of Silica Monoliths: Extraction of Rod Networks*  
Conference Proceeding, "Forum Bildverarbeitung" 2012, KIT Scientific Publishing, Karlsruhe, 107-118 (2012)
147. C. Jimenez, F. Garcia-Moreno, B. Pfretzschner, P. Kamm, T. Neu, M. Klaus, Ch. Genzel, A. Hilger, I. Manke and J. Banhart  
*Metal foaming studied in-situ by energy dispersive XRD of synchrotron radiation, X-ray radioscopy, and optical imaging*  
7th International Conference on Porous Metals and Metallic Foams (MetFoam2011), Busan (Korea), 18.-21.09.2011, in: "MetFoam2011", Editor: B.-Y. Hur, p. 13–19 (2012)
146. R. Grothausmann, G. Zehl, I. Manke, S. Fiechter, P. Bogdanoff, I. Dorbandt, A. Kupsch, A. Lange, M. Hentschel, G. Schumacher, and J. Banhart,  
*Three-Dimensional Characterization of Catalyst Nano-Particles*  
News article, International Journal of Materials Research 103, 1, 135-136 (2012)
145. Ch. Kallfaß, C. Hoch, A. Hilger, I. Manke  
*Short-circuit and overcharge behaviour of some lithium ion batteries*  
IEEE conference publications, International Multi-Conference on Systems, Signals and Devices 2012, p. 1-5, ISBN/ISSN 978-1-4673-1591-0/6, doi:10.1109/SSD.2012.6198058 (2012)

### **Book contributions**

144. I. Manke, N. Kardjilov, Ch. Hartnig  
*Neutron tomography for polymer electrolyte membrane fuel cell characterization*  
Polymer electrolyte membrane and direct methanol fuel cell technology: In situ characterization techniques for low temperature fuel cells Vol. 2, ISBN-13: 978 1 84569 774 7, p. 243-261 (2012)
143. Ch. Hartnig, I. Manke  
*Synchrotron radiography for high resolution transport and materials studies of low temperature fuel cells*  
Polymer electrolyte membrane and direct methanol fuel cell technology: In situ characterization techniques for low temperature fuel cells Vol. 2, ISBN-13: 978 1 84569 774 7, p. 462-482 (2012)
142. C. Tötzke, I. Manke, W. Lehnert  
*In Situ Imaging at Large-scale Facilities*  
in Fuel Cell Science and Engineering – Materials, Processes and Systems, Ed. D. Stolten, B. Emonts, Wiley-VCH Verlag GmbH & Co. KGaA, p 493-519 (2012)

## **2011**

### **ISI journals**

141. N. Kardjilov, I. Manke, A. Hilger, M. Strobl, J. Banhart  
*Neutron imaging in materials science*  
**Materials Today** 14, 6, p. 248-256 (2011)  
impact factor = 24.5
140. R. Grothausmann, G. Zehl, I. Manke, S. Fiechter, P. Bogdanoff, I. Dorbandt, A. Kupsch, A. Lange, M. Hentschel, G. Schumacher, J. Banhart  
*Quantitative Structural Assessment of Heterogeneous Catalysts by Electron Tomography*  
**Journal of the American Chemical Society**, 133, 45, p. 18161-18171 (2011)  
impact factor = 14.4
139. H. Markötter, I. Manke, Ph. Krüger, J. Haußmann, M. Klages, T. Arlt, H. Riesemeier, Ch. Hartnig, J. Scholta, J. Banhart  
*Investigation of 3D water transport paths in gas diffusion layers by combined in-situ X-ray radiography and tomography*  
**Electrochemistry Communications** 13, 9, p. 1001-1004 (2011)  
impact factor = 4.8
136. F. Witzmann, K. M. Claeson, O. Hampe, F. Wieder, A. Hilger, I. Manke, M. Niederhagen, B. M. Rothschild and P. Asbach  
*Paget disease of bone in a Jurassic dinosaur*  
**Current Biology**, 21, 17, p. R647-R648 (2011)  
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138. T. Arlt, I. Manke, K. Wippermann, C. Tötzke, H. Markötter, H. Riesemeier, J. Mergel, J. Banhart  
*Investigation of the three-dimensional ruthenium distribution in fresh and aged membrane electrode assemblies with synchrotron X-ray absorption edge tomography*  
**Electrochemistry Communications** 13, 8, p. 826-829 (2011)  
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137. H. Schulenburg, B. Schwanitz, J. Krbanjevic, N. Linse, G. G. Scherer, A. Wokaun, R. Grothausmann, and I. Manke  
*3D Imaging of Catalyst Support Corrosion in Polymer Electrolyte Fuel Cells*  
**Journal of Physical Chemistry C**, 115, p. 14236–14243 (2011)  
impact factor = 4.5

135. L. Gondek, N.B. Selvaraj, J. Czub, H. Figiel, D. Chapelle, N. Kardjilov, A. Hilger and I. Manke  
*Imaging of an operating LaNi<sub>4.8</sub>Al<sub>0.2</sub>-based hydrogen storage container*  
**International Journal of Hydrogen Energy**, 36, 16, 9751-9757 (2011)  
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134. C. Tötzke, I. Manke, C. Hartnig, R. Kuhn, H. Riesemeier, J. Banhart  
*Investigation of carbon fibre gas diffusion layers by means of synchrotron X-ray tomography*  
**ECS Transactions**, 41, 1, 379-386 (2011)
133. W. Maier, T. Arlt, K. Wippermann, C. Wannek, I. Manke, W. Lehnert, D. Stolten  
*Investigation on HT-PEFCs by Means of Synchrotron X-ray Radiography and Electrochemical Impedance Spectroscopy*  
**ECS Transactions**, 41, 1, 1413-1422 (2011)
132. I. Manke, H. Markötter, C. Tötzke, N. Kardjilov, R. Grothausmann, M. Dawson, S. Haas, D. Thomas, A. Hoell, Ch. Genzel, Ch. Hartnig, J. Banhart  
*Investigation of energy-relevant materials with synchrotron X-rays and neutrons*  
**Advanced Engineering Materials**, 13, 8, p. 712-729, (2011)
131. R. Kuhn, J. Scholta, Ph. Krüger, Ch. Hartnig, W. Lehnert, T. Arlt, I. Manke  
*Measuring Device for Synchrotron X-ray Imaging and First Investigation of High Temperature PEM Fuel Cells*  
**Journal of Power Sources** 196, 12, p. 5231-5239 (2011)  
impact factor = 7.0
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*Random geometric graphs for modelling the pore space of fibre-based materials*  
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