Bernhard Strasser

Curriculum Vitae

Personal Data

Address:	Peter-Jordan-Straße 157/1/1, 1180 Vienna, Austria
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Date of Birth:	05/26/1987
Place of Birth:	Salzburg
Citizenship:	Austria

Work Experience

Samariterbund Salzburg
Civilian Service Employee
10/2005 - 10/2006

Medical University of Vienna
Research Fellow
07/2012 - 05/2017

Athinoula A. Martinos Center for Biomedical Imaging, MGH
Research Fellow
06/2017 - 04/2020

Medical University of Vienna
Research Fellow
06/2020 -

Education

Higher School Certificate, passed with merit
07/2005

Diploma studies in physics at the University of Vienna (equivalent to bachelor and master studies)
10/2006 – 04/2012

Conferment of MSc. in physics
04/2012

PhD studies "Dr.-Studium der techn. Wissenschaften Technische Physik" at Technical University of Vienna
05/2012 – 04/2017

Conferment of PhD in technical physics
04/2017

Languages

German – Mother Tongue
English – Proficient
Italian – Basic

Publications

Strasser B, Chmelik M, Robinson SD, Hangel G, Gruber S, Trattnig S, Bogner W. Coil combination of multichannel MRSI data at 7 T: MUSICAL. NMR in biomedicine. 2013; 26(12):1796-805.

Bogner W, Gagoski B, Hess AT, Bhat H, Tisdall MD, van der Kouwe AJ, **Strasser B**, Marjańska M, Trattnig S, Grant E, Rosen B, Andronesi OC. 3D GABA imaging with real-time motion correction, shim update and reacquisition of adiabatic spiral MRSI. NeuroImage. 2014; 103:290-302.

Navarro de Lara LI, Windischberger C, Kuehne A, Woletz M, Sieg J, Bestmann S, Weiskopf N, **Strasser B**, Moser E, Laistler E. A novel coil array for combined TMS/fMRI experiments at 3 T. Magnetic resonance in medicine. 2015; 74(5):1492-501.

Považan M, Hangel G, **Strasser B**, Gruber S, Chmelik M, Trattnig S, Bogner W. Mapping of brain macromolecules and their use for spectral processing of (1)H-MRSI data with an ultra-short acquisition delay at 7 T. NeuroImage. 2015; 121:126-35.

Hangel G, **Strasser B**, Považan M, Gruber S, Chmelík M, Gajdošík M, Trattnig S, Bogner W. Lipid suppression via double inversion recovery with symmetric frequency sweep for robust 2D-GRAPPA-accelerated MRSI of the brain at 7 T. NMR in biomedicine. 2015; 28(11):1413-25.

Gruber S, Minarikova L, Pinker K, Zaric O, Chmelik M, **Strasser B**, Baltzer P, Helbich T, Trattnig S, Bogner W. Diffusion-weighted imaging of breast tumours at 3 Tesla and 7 Tesla: a comparison. European radiology. 2016; 26(5):1466-73. DOI: 10.1007/s00330-015-3947-1.

Zaric O, Pinker K, Zbyn S, **Strasser B**, Robinson S, Minarikova L, Gruber S, Farr A, Singer C, Helbich TH, Trattnig S, Bogner W. Quantitative Sodium MR Imaging at 7 T: Initial Results and Comparison with Diffusion-weighted Imaging in Patients with Breast Tumors. Radiology. 2016; 280(1):39-48. DOI: 10.1148/radiol.2016151304.

Hnilicová P, Považan M, **Strasser B**, Andronesi OC, Gajdošík M, Dydak U, Ukropec J, Dobrota D, Trattnig S, Bogner W. Spatial variability and reproducibility of GABA-edited MEGA-LASER 3D-MRSI in the brain at 3 T. NMR in biomedicine. 2016; 29(11):1656-1665.

Strasser B, Považan M, Hangel G, Hingerl L, Chmelik M, Gruber S, Trattnig S, Bogner W. (2 + 1)D-CAIPIRINHA accelerated MR spectroscopic imaging of the brain at 7T. Magnetic resonance in medicine. 2017; 78(2):429-440.

Gruber S, Heckova E, **Strasser B**, Považan M, Hangel GJ, Minarikova L, Trattnig S, Bogner W;
Mapping an Extended Neurochemical Profile at 3 and 7 T Using Accelerated High-Resolution Proton Magnetic Resonance Spectroscopic Imaging. Invest Radiol. 2017 Oct;52(10):631-639

Eva Heckova, Michal Považan, Bernhard Strasser, Patrik Krumpolec, Petra Hnilicová, Gilbert J Hangel, Philipp A Moser, Ovidiu C Andronesi, Andre J van der Kouwe, Peter Valkovic, Barbara Ukropcova, Siegfried Trattnig, Wolfgang Bogner. Real-time correction of motion and imager instability artifacts during 3D γ-aminobutyric acid–edited MR spectroscopic imaging. Radiology. 2018; 286(2): 666-675. DOI: doi.org/10.1148/radiol.2017170744.

Michal Považan, Bernhard Strasser, Gilbert Hangel, Eva Heckova, Stephan Gruber, Siegfried Trattnig, Wolfgang Bogner. Simultaneous mapping of metabolites and individual macromolecular components via ultra-short acquisition delay 1H MRSI in the brain at 7T. Magnetic resonance in medicine. 2018; 79(33): 1231-1240. DOI: doi.org/10.1002/mrm.26778.

Trattnig S, Springer E, Bogner W, Hangel G, **Strasser B**, Dymerska B, Cardoso PL, Robinson SD. Key clinical benefits of neuroimaging at 7T. NeuroImage. 2018; 168:477-489.

Hangel G, **Strasser B**, Považan M, Heckova E, Hingerl L, Boubela R, Gruber S, Trattnig S, Bogner W. Ultra-high resolution brain metabolite mapping at 7 T by short-TR Hadamard-encoded FID-MRSI. NeuroImage. 2018; 168:199-210.

Hingerl L, Bogner W, Moser P, Považan M, Hangel G, Heckova E, Gruber S, Trattnig S, ***Strasser B***. Density-weighted concentric circle trajectories for high resolution brain magnetic resonance spectroscopic imaging at 7T. **Magn Reson Med**. 2018 Jun;79(6):2874-2885, DOI: 10.1002/mrm.26987

Moser P, Bogner W, Hingerl L, Heckova E, Hangel G, Motyka S, Trattnig S, ***Strasser B***. Non-Cartesian GRAPPA and coil combination using interleaved calibration data—application to concentric-ring MRSI of the human brain at 7T. **Magn Reson Med**. 2019 Nov;82(5):1587-1603, DOI: 10.1002/mrm.27822

Philipp Moser, Lukas Hingerl, Bernhard Strasser, Michal Považan, Gilbert Hangel, Ovidiu C Andronesi, Andre van der Kouwe, Stephan Gruber, Siegfried Trattnig, Wolfgang Bogner. Whole-slice mapping of GABA and GABA+ at 7T via adiabatic MEGA-editing, real-time instability correction, and concentric circle. Neuroimage 2019; 184: 475-489. DOI: 10.1016/j.neuroimage.2018.09.039.

Eva Heckova, Bernhard Strasser, Gilbert J Hangel, Michal Považan, Assunta Dal-Bianco, Paulus S Rommer, Petr Bednarik, Stephan Gruber, Fritz Leutmezer, Hans Lassmann, Siegfried Trattnig, Wolfgang Bogner. 7 T magnetic resonance spectroscopic imaging in multiple sclerosis: how does spatial resolution affect the detectability of metabolic changes in brain lesions?. Investigative Radiology 2019; 54(4): 247-254. DOI: 10.1097/RLI.0000000000000531.

Gilbert Hangel, Saurabh Jain, Elisabeth Springer, Eva Hečková, Bernhard Strasser, Michal Považan, Stephan Gruber, Georg Widhalm, Barbara Kiesel, Julia Furtner, Matthias Preusser, Thomas Roetzer, Siegfried Trattnig, Diana M Sima, Dirk Smeets, Wolfgang Bogner. High-resolution metabolic mapping of gliomas via patch-based super-resolution magnetic resonance spectroscopic imaging at 7T. Neuroimage 2019; 191: 587-595. DOI: 10.1016/j.neuroimage.2019.02.023.

Stanislav Motyka, Philipp Moser, Lukas Hingerl, Gilbert Hangel, Eva Heckova, Bernhard Strasser, Korbinian Eckstein, Simon Daniel Robinson, Benedikt A Poser, Stephan Gruber, Siegfried Trattnig, Wolfgang Bogner. The influence of spatial resolution on the spectral quality and quantification accuracy of whole-brain MRSI at 1.5 T, 3T, 7T, and 9.4 T. Magnetic resonance in medicine. 2019; 82(2): 551-565. DOI: 10.1002/mrm.27746.

Gilbert Hangel, Cornelius Cadrien, Philipp Lazen, Julia Furtner, Alexandra Lipka, Eva Hečková, Lukas Hingerl, Stanislav Motyka, Stephan Gruber, Bernhard Strasser, Barbara Kiesel, Mario Mischkulnig, Matthias Preusser, Thomas Roetzer, Adelheid Wöhrer, Georg Widhalm, Karl Rössler, Siegfried Trattnig, Wolfgang Bogner. High-resolution metabolic imaging of high-grade gliomas using 7T-CRT-FID-MRSI. Neuroimage: Clinical. 2020; 28: 102433. DOI: doi.org/10.1016/j.nicl.2020.102433.

Eva Heckova, Michal Považan, Bernhard Strasser, Stanislav Motyka, Gilbert Hangel, Lukas Hingerl, Philipp Moser, Alexandra Lipka, Stephan Gruber, Siegfried Trattnig, Wolfgang Bogner. Effects of different macromolecular models on reproducibility of FID-MRSI at 7T. Magnetic resonance in medicine. 2020; 83(1): 12-21. DOI: doi.org/10.1002/mrm.27922.

Li X, ***Strasser B****, Jafari-Khouzani K, Thapa B, Small J, Cahill DP, Dietrich J, Batchelor TT, Andronesi OC.* Super-resolution whole-brain 3D MR spectroscopic imaging for mapping D-2-hydroxyglutarate and tumor metabolism in isocitrate dehydrogenase 1-mutated human gliomas. **Radiology**. 2020 Mar;294(3):589-597, DOI: 10.1148/radiol.2020191529

Lukas Hingerl, Bernhard Strasser, Philipp Moser, Gilbert Hangel, Stanislav Motyka, Eva Heckova, Stephan Gruber, Siegfried Trattnig, Wolfgang Bogner. Clinical high-resolution 3D-MR spectroscopic imaging of the human brain at 7 T. Investigative radiology. 2020; 55(4): 239-248. DOI: 10.1097/RLI.0000000000000626.

Philipp Moser, Korbinian Eckstein, Lukas Hingerl, Michael Weber, Stanislav Motyka, Bernhard Strasser, Andre van der Kouwe, Simon Robinson, Siegfried Trattnig, Wolfgang Bogner. Intra-session and inter-subject variability of 3D-FID-MRSI using single-echo volumetric EPI navigators at 3T. Magnetic resonance in medicine. 2020; 83(6): 1920-1929. DOI: 10.1002/mrm.28076.

*#Esmaeili M, #Stockmann J, #****Strasser B****, Arango N, Thapa B, Wang Z, van der Kouwe A, Dietrich J, Cahill DP, Batchelor TT, White J, Adalsteinsson E, Wald L, Andronesi OC.* An integrated RF-receive/B0-shim array coil boosts performance of whole-brain MR spectroscopic imaging at 7 T. **Sci Rep**. 2020 Sep 14;10(1):15029, DOI:10.1038/s41598-020-71623-5, *#shared first author*

Bachrata B, **Strasser B**, Bogner W, Schmid AI, Korinek R, Kršňák M, Trattnig S, Robinson SD. Simultaneous Multiple Resonance Frequency imaging (SMURF): Fat-water imaging using multi-band principles. Magnetic resonance in medicince. 2021; 85(3):1379-1396.

Richard Imrich, Miroslav Vlcek, Adela Penesova, Zofia Radikova, Andrea Havranova, Monika Sivakova, Pavel Siarnik, Branislav Kollar, Tomas Sokolov, Peter Turcani, Eva Heckova, Gilbert Hangel, Bernhard Strasser, Wolfgang Bogner. Cardiac autonomic function in patients with early multiple sclerosis. Clinical Autonomic Research 2021; 31: 553–562. DOI: 10.1007/s10286-021-00790-w.

Esmaeili M, **Strasser B**, Bogner W, Moser P, Wang Z, Andronesi OC. Whole-Slab 3D MR Spectroscopic Imaging of the Human Brain With Spiral-Out-In Sampling at 7T. JMRI. 2021; 53(4): 1237-1250.

Tkáč I, Deelchand D, Dreher W, Hetherington H, Kreis R, Kumaragamage C, Považan M, Spielman DM, **Strasser B**, de Graaf RA. Water and lipid suppression techniques for advanced 1 H MRS and MRSI of the human brain: experts' consensus recommendations. **NMR Biomed**. 2021; 34(5):e4459, DOI: 10.1002/nbm.4459

Stanislav Motyka, Lukas Hingerl, Bernhard Strasser, Gilbert Hangel, Eva Heckova, Asan Agibetov, Georg Dorffner, Stephan Gruber, Siegfried Trattning, Wolfgang Bogner. k-Space-based coil combination via geometric deep learning for reconstruction of non-Cartesian MRSI data. Magnetic Resonance in Medicine 2021 [EPub]. DOI: 10.1002/mrm.28876.

Ema Kantorová, Petra Hnilicová, Wolfgang Bogner, Marián Grendár, Daniel Čierny, Eva Hečková, Bernhard Strasser, Róbert Ružinák, Kamil Zeleňák, Egon Kurča. Positivity of oligoclonal bands in the cerebrospinal fluid predisposed to metabolic changes and rearrangement of inhibitory/excitatory neurotransmitters in subcortical brain structures in multiple sclerosis. Multiple Sclerosis and Related Disorders 2021; 52(102978). DOI: 10.1016/j.msard.2021.102978.

Ema Kantorová, Petra Hnilicová, Wolfgang Bogner, Marián Grendár, Ján Grossmann, Slavomíra Kováčová, Eva Hečková, Bernhard Strasser, Daniel Čierny, Kamil Zeleňák, Egon Kurča. Neurocognitive performance in relapsing-remitting multiple sclerosis patients is associated with metabolic abnormalities of the thalamus but not the hippocampus– GABA-edited 1H MRS study. Neurological Research 2021 [EPub]. DOI: 10.1080/01616412.2021.1956282.

Gilbert Hangel, Benjamin Spurny-Dworak, Philipp Lazen, Cornelius Cadrien, Sukrit Sharma, Lukas Hingerl, Eva Hečková, Bernhard Strasser, Stanislav Motyka, Alexandra Lipka, Stephan Gruber, Christoph Brandner, Rupert Lanzenberger, Karl Rössler, Siegfried Trattnig, Wolfgang Bogner. Inter-subject stability and regional concentration estimates of 3D-FID-MRSI in the human brain at 7 T. NMR in Biomed 2021; e4596; DOI: 10.1002/nbm.4596.

Antoine Klauser, Bernhard Strasser, Bijaya Thapa, Francois Lazeyras, Ovidiu Andronesi. Achieving high-resolution 1H-MRSI of the human brain with compressed-sensing and low-rank reconstruction at 7 Tesla. Journal of Magnetic Resonance 2021; 331(107048). DOI: 10.1016/j.jmr.2021.107048

***Strasser B**, Arango NS, Stockmann JP, Gagoski B, Thapa B, Xianqi L, Bogner W, Moser P, Small J, Cahill DP, Batchelor T, Dietrich J, van der Kouwe A, White J, Adalsteinsson E, Andronesi OC.* Improving 2HG MRS Imaging in Mutant IDH

Glioma Patients with Multiplexed RF-receive/B_0-shim Array Coils at 3T. NMR in Biomed 2021; e4621. DOI: 10.1002/nbm.4621.

Conference Contributions

First Author

Strasser B, Chmelik M, Trattnig S, Gruber S, Bogner W. Prior knowledge in CSI obtained from phase images: initial results. International Workshop "Magnetic Resonance Studies", 2011, Třešť, Oral Talk.

Strasser B, Chmelik M, Trattnig S, Gruber S, Bogner W. Improved quantification of CSI data by phase prior knowledge: Application to Multichannel coils. International Workshop "Methods in Proton MR Spectroscopy – Data Acquisition and Evaluation", 2011, Tübingen, Oral Talk.

Strasser B, Chmelik M, Trattnig S, Gruber S, Bogner W. Prior Knowledge in CSI Obtained from Phase Images: Initial Results. ESMRMB, Leipzig, E-Poster.

Strasser B, Chmelik M, Trattnig S, Gruber S, Bogner W. Coil Combination of CSI Data Based on Reference Images at 7T. ISMRM 2012, Melbourne, Traditional Poster.

Strasser B, Chmelik M, Trattnig S, Gruber S, Bogner W. Increasing the SNR in MRSI by Combining the Channels of an Array Coil Using GRE Images for Phasing. International Workshop "Magnetic Resonance Studies" 2012, Oberschwarzenberg, Oral Talk.

Strasser B, Hangel G, Gruber S, Trattnig S, Bogner W. 2D-GRAPPA Accelerated FID Based MRSI of the Brain at 7T. ISMRM 2013,Salt Lake City, Traditional Poster.

Strasser B, Hangel G, Gruber S, Trattnig S, Bogner W. 2D-GRAPPA accelerated FID based MRSI of the brain at 7T. International Workshop "Magnetic Resonance Studies" 2013, Freudenstadt, Oral Talk.

Strasser B, Hangel G, Chmelik M, Trattnig S, Gruber S, Povazan M, Bogner W . (2+1)D-CAIPIRINHA Accelerated FID Based MRSI of the Brain at 7T. ISMRM 2014, Milan, Oral Talk.

Strasser B, Bogner W, Bär P, Hangel G, Springer E, Mlynarik V, Griswold M A, Ma D, Jiang Y, Nittka M. Comparison of accuracy and reproducibility of MR Fingerprinting with conventional T1 and T2 mapping. ISMRM 2015, Toronto, E-Poster.

Strasser B, Hangel G , Gruber S, Chmelík M, Dal-Bianco A, Považan M, Leutmezer F, Trattnig S, Bogner W. Ultra-high Resolution MRSI of Multiple Sclerosis at 7T. ISMRM 2016, Toronto, E-Poster, Award for best abstract in the MRS study group session.

Co-author

Hangel G, **Strasser B**, Povazan M, Gruber S, Chmelik M, Trattnig S, Bogner W. Spiral Chemical Shift Imaging at 7 T. International Workshop "Magnetic Resonance Studies", 2013, Freudenstadt, Oral Talk.

Hangel G, **Strasser B**, Gruber S, Chmelik M, Trattnig S, Bogner W. 3D Metabolic Mapping of the Brain at 7T by Pulse-Cascaced Hadamard Encoding with Short Acquisition Delay. ISMRM 2014, Salt Lake City, Traditional Poster.

Hangel G, **Strasser B**, Gruber S, Chmelik M, Trattnig S, Bogner W. Pulse cascaded Hadamard Spectroscopic Imaging with short acquisition delay in the brain at 7T. ESMRMB 2014, Lisbon, Oral Talk.

Hangel G, **Strasser B**, Povazan M, Gruber S, Chmelik M, Trattnig S, Bogner W. 3D metabolic mapping in the brain by 2D-GRAPPA accelerated FID-CSI at 7T. ISMRM 2014, Milan, E-Poster.

Bogner W, Gagoski B, Hess AT, **Strasser B**, Bhat H, Tisdall D, van der Kouwe AJW, Trattnig S, Rosen B, Andronesi OC. Real-time motion and B0-corrected 3D-MRSI with selective reacquisition for MEGA editing of GABA in the brain at 3T. ISMRM 2014, Milan, Power Poster.

Považan M, **Strasser B**, Hangel G, Gruber S, Trattnig S, Bogner W. Multimodal Post-processing software for MRSI data evaluation. ISMRM 2015, Toronto, Traditional Poster.

Hangel G, **Strasser B**, Považan M, Gruber S, Chmelík M, Trattnig S, Bogner W. Lipid and macromolecule suppression by double inversion recovery in metabolic mapping of the brain at 7T. ISMRM 2015, Toronto, Traditional Poster.

Bogner W, **Strasser B**, Považan M, Hangel G, Gagoski B, Gruber S, Rosen B, Trattnig S, Andronesi O C. 3D mapping of Glutathione in the human brain via real-time motion corrected MEGA-LASER MRSI. ISMRM 2015, Toronto, Oral Talk.

Považan M, Hangel G, **Strasser B**, Chmelík M, Gruber S, Trattnig S, Bogner W. Detection of brain macromolecules using double inversion recovery ultra-short acquisition delay 1H MRSI at 7 Tesla. ISMRM 2015, Toronto, Oral Talk.

Hangel G, **Strasser B**, Považan M, Gruber S, Chmelík M, Widhalm G, Knosp E, Dal-Bianco A, Leutmezer F, Trattnig S, Bogner W. High resolution spectroscopic imaging with ultra short TE in patients with multiple sclerosis and brain tumors at 7T. ISMRM 2015, Toronto, Power Poster.

Považan M, Hangel G, **Strasser B**, Heckova E, Hingerl L, Gruber S, Trattnig S, Bogner W. Parameterization of measured macromolecular background in ultra-short acquisition delay 1H MRSI in the brain at 7T. ISMRM 2016, Singapore, Oral Talk.

Hangel G, **Strasser B**, Považan M, Lukas Hingerl, Chmelík M, Gruber S, Trattnig S, Bogner W. Metabolic mapping of the brain using ultra-high resolution MRSI at 7 T. ISMRM 2016, Singapore, Oral Talk

Hangel G, **Strasser B**, Považan M, Gajdošík M, Gruber S, Chmelík M, Trattnig S, Bogner W. A comparison of lipid suppression by double inversion recovery, L1- and L2-regularisation for high resolution MRSI in the brain at 7 T. ISMRM 2016, Singapore, Traditional Poster.

Hnilicová P, Považan M, **Strasser B**, Andronesi O C, Dobrota D, Trattnig S, Bogner W. Measurement reproducibility of the spiral encoding GABA-edited MEGA-LASER 3D-MRSI in the brain at 3T. ISMRM 2016, Singapore, Traditional Poster.

Heckova E, Gruber S, **Strasser B**, Považan M, Hangel G, Trattnig S, Bogner W. Comparison of high-resolution FID-MRSI in the brain between 3 and 7 Tesla. ISMRM 2016, Singapore, Traditional Poster.

Považan M, Hingerl L, **Strasser B**, Hangel G, Heckova E, Gruber S, Trattnig S, Bogner W. Improved semi-LASER sequence with short echo time for ultra-high field using selective GOIA refocusing pulses. ISMRM 2016, Singapore, Traditional Poster.

Hingerl L, Gajdošík M, Považan M, **Strasser B**, Hangel G, Krššák M, Trattnig S, Bogner W. In Vivo Detection of Omega-3 Fatty Acids at 7 T with MEGA-sLASER. ISMRM 2016, Singapore, Traditional Poster.