

Curriculum vitae – Elmar Laistler

https://www.meduniwien.ac.at/researcher/elmar_laistler

Short bio

Elmar Laistler, born 1981 in Krems/Austria, holds an MSc and PhD in Physics from Vienna University of Technology and is the head of the Radio Frequency Lab, which he initiated and built up at the Division MR Physics, Center for Medical Physics and Biomedical Engineering at the Medical University of Vienna.

He has established collaboration projects with Austrian, French, German, and Korean partner institutions, and is teaching Medical Physics.



Research focus

Hardware and software development for (ultra-)high field magnetic resonance systems, including electromagnetic simulation, multi-channel and multi-nuclear radio frequency coils, and RF coil safety particularly for ultra-high field parallel transmission systems.

Academic and Professional Record

Academic Record

01/2011 **PhD in Physics**, University of Technology (TU), Vienna, Austria
06/2005 **MSc in Physics**, TU Vienna, Austria
06/1999 **High school graduation** with distinction, Krems, Austria

Professional Record

Since 2015 **Assistant Professor**
at MR Centre of Excellence (MRCE), Division MR-Physics, Center for Medical Physics and Biomedical Engineering (CMPBME), Medical University of Vienna (MUV), Austria

Since 2011 **Head of Radio Frequency Lab**, MRCE, CMPBME, MUV, Austria

2011 - 2015 **University Assistant (post-doc)**
at MRCE, Division MR-Physics, CMPBME, MUV, Austria

2010 + 2011 **Visiting Scientist**, Physikalisch Technische Bundesanstalt, Berlin, Germany

2010 - 2011 **University Assistant (post-graduate)** at MRCE, CMPBME, MUV, Austria

2007 - 2010 **PhD student** at MRCE, CMPBME, MUV, Austria

2005 - 2006 **PhD student** at U2R2M, Université Paris Sud, France

2004 - 2005 **Master Student** at MRCE, CMPBME, MUV, Austria

2004 **Internship** at MRCE, CMPBME, MUV, Austria

2004 **Internship** at Solar cell systems research group, Atomic Institute of the Austrian Universities (AI), TU Vienna, Austria

2003 **Internship** at Superconductivity Research Group, AI, TU Vienna, Austria

2002 + 2003 **Internships** at Fraunhofer Institute for Solar Energy Systems (ISE), Freiburg, Germany

Research Record

Grants (total €2.8 Mio)

2018 - 2021 **PI of ANR/FWF project**, collaboration with Université de Lorraine and Université Paris Sud “BRACOIL – Smart bra-shaped MRI breast coil”

2017 - 2020 **Co-PI and supervisor of a 3-year PhD project grant** from Université Paris-Sud

2015 - 2018 **PI of FWF project**, collaboration with TU Vienna
“pULSE – parallel transmit Ultra-fast Local SAR Estimation”

2015 - 2018 **Co-PI of FWF project**
“Integrated Transmission Measurement System for PET/MR Imaging”

2015 - present **Co-PI of contract research project**
“A coil array for combined TMS/fMRI experiments at 3 T”

2015 - 2016 **PI of contract research project**
“Flexible 23-channel RF coil for 3 T”

2015 - 2016 **Co-author of "OeAD WTZ Amadée"** international mobility grant France/Austria

2014 - 2018 **PI of ANR/FWF project**, collaboration with Université Paris-Sud
“FLEXAR7 - Multi-purpose flexible coil array for high resolution 7T MRI”

2013 - 2014 **PI of "OeAD WTZ Amadée"** international mobility grant France/Austria

2011 - 2015 **Co-author and work package leader of FFG project**
“Vienna Research Studio for Ultra-High Field Magnetic Resonance Applications”

2011 - 2014 **Co-PI and supervisor of a 3-year PhD project grant** from Université Paris-Sud

2010 - 2012 **Co-author of "KORANET"-grant**, collaboration South Korea/Germany/Austria

2010 - 2011 **Co-author of "OeAD WTZ Amadée"** international mobility grant France/Austria

2007 - 2008 **Co-author of "OeAD WTZ Amadée"** international mobility grant France/Austria

Awards

- 2005 Stipend from TU Vienna for scientific work abroad
- 2005 "TOP Stipend" from Government of Lower Austria for studies abroad
- 2005 Student stipend ESMRMB (European Society for Magnetic Resonance in Medicine and Biology)
- 2001 "TOP Stipend" from Government of Lower Austria for excellent university performance
- 1999 Two "Golden Rings of Honor" from City of Krems, and high school

Publications

Peer-reviewed Articles

1. Frass-Kriegl R, Navarro de Lara LI, Pichler M, Sieg J, Moser E, Windischberger C, **Laistler E**. *Flexible 23-channel coil array for high-resolution magnetic resonance imaging at 3 Tesla*. PLOS ONE 2018; doi:10.1371/journal.pone.0206963
2. Renner A, Rausch I, Cal-Gonzales J, Frass-Kriegl R, Navarro de Lara LI, Sieg J, **Laistler E**, Dungal D, Glanzer M, Moser E, Beyer T, Figl M, Birkfellner W. *A head coil system with an integrated orbiting transmission point source mechanism for attenuation correction in PET/MRI*. Phys Med Biol 2018; doi:10.1088/1361-6560/aae9a9
3. Hosseinnezhadian S, Frass-Kriegl R, Goluch-Roat S, Pichler M, Sieg J, Vít M, Poirier-Quinot M, Darrasse L, Moser E, Ginefri J-C, **Laistler E**. *A flexible 12-channel transceiver array of transmission line resonators for 7 T MRI*. J Magn Reson 2018; doi:10.1016/j.jmr.2018.08.013.
4. **Laistler E**, Moser E. *Handy Magnetic Resonance Coils*. Nature Biomed Eng 2018; 2(8):557-558
5. Goluch S, Frass-Kriegl R, Meyerspeer M, Pichler M, Sieg J, Gajdošík M, Krššák M, **Laistler E**. *Proton-decoupled carbon magnetic resonance spectroscopy in human calf muscles at 7 T using a multi-channel radiofrequency coil*. Scientific Reports 2018; 8:6211
6. **Laistler E**, Dymerska B, Sieg J, Goluch S, Frass-Kriegl R, Kuehne A, Moser E. *In vivo MRI of the human finger at 7 T*. Magn Reson Med 2018; 79(1):588-592
7. Ambrosch S, Duliban C, Heger H, Moser E, **Laistler E**, Windischberger C, Heuberger E. *Effects of 1,8 - Cineole and (-) - Linalool on Functional Brain Activation in a Working Memory Task*. Flavour Fragr J 2018; 33:235 – 244
8. Niess F, Fiedler GB, Schmid AI, **Laistler E**, Frass-Kriegl R, Wolzt M, Moser E, Meyerspeer M. *Dynamic multivoxel - localized 31P MRS during plantar flexion exercise with variable knee angle*. NMR Biomed 2018; e3905
9. Moser E, **Laistler E**, Schmitt F, Kontaxis G. *Ultra-High Field NMR and MRI – The Role of Magnet Technology to Increase Sensitivity and Specificity*. Front Phys 2017; 5:33
10. Navarro de Lara LI, Tik M, Woletz M, Frass-Kriegl R, Moser E, **Laistler E**, Windischberger C. *High-sensitivity TMS/fMRI of the Human Motor Cortex Using a Dedicated Multichannel MR Coil*. Neuroimage 2017; 150:262-269
11. Frass-Kriegl R, **Laistler E**, Hosseinnezhadian S, Schmid AI, Moser E, Poirier-Quinot M, Darrasse L, Ginefri J-C. *Multi-turn multi-gap transmission line resonators – Concept, design, and first implementation at 4.7 T and 7 T*. J Magn Reson 2016; 273:65-72
12. Fiedler GB, Schmid AI, Goluch S, Schewzow K, **Laistler E**, Niess F, Unger E, Wolzt M, Mirzahosseini A, Kemp GJ, Moser E, Meyerspeer M. *Skeletal muscle ATP synthesis and cellular H⁺ handling measured by localized ³¹P-MRS during exercise and recovery*. Scientific Reports 2016; 6:32037
13. 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*. Magn Reson Med 2015; 74(5):1492–1501
14. Kuehne A, Goluch S, Waxmann P, Ittermann B, Moser E, **Laistler E**. *Power balance and Loss Mechanism Analysis in RF transmit coil arrays*. Magn Reson Med 2015; 74(4):1165–1176
15. Goluch S, Kuehne A, Meyerspeer M, Kriegl R, Schmid AI, Herrmann T, Mallow J, Hong S-M, Cho Z-H, Bernarding J, Moser E, **Laistler E**. *A form-fitted 3 channel ³¹P, two channel ¹H transceive coil array for calf muscle studies at 7 T*. Magn Reson Med 2015; 73(6):2376–2389
16. Schmid AI, Meyerspeer M, Robinson SD, Goluch S, Wolzt M, Fiedler GB, Bogner W, **Laistler E**, Krššák M, Moser E, Trattnig S, Valkovič L. *Dynamic PCr and pH imaging of human calf muscles during exercise and recovery using ³¹P gradient-echo MRI at 7 T*. Magn Reson Med 2015; 75(6):2324–2331
17. Kriegl R, Ginefri J-C, Poirier-Quinot M, Darrasse L, Goluch S, Kuehne A, Moser E, **Laistler E**. *A novel inductive decoupling technique for flexible transceiver arrays of monolithic transmission line resonators*. Magn Reson Med 2015; 73(4):1669–1681
18. Fiedler GB, Meyerspeer M, Schmid AI, Goluch S, Schewzow K, **Laistler E**, Mirzahosseini A, Niess F, Unger E, Wolzt M, Moser E. *Localized semi-LASER dynamic 31P magnetic resonance spectroscopy of the soleus during and following exercise at 7 T*. Magn Reson Mater Phys 2015; 28(5):493–501
19. Schewzow K, Fiedler GB, Meyerspeer M, Goluch S, **Laistler E**, Wolzt M, Moser E, Schmid AI. *Dynamic ASL and T₂*-weighted MRI in exercising calf muscle at 7 T – a feasibility study*. Magn Reson Med 2015; 73(3):1190–1195
20. **Laistler E**, Poirier-Quinot M, Lambert S, Dubuisson R-M, Girard OM, Moser E, Darrasse L, Ginefri J-C. *In vivo human skin imaging at sub-nanoliter resolution on a clinical 1.5 T MR scanner using a superconducting surface coil*. J Magn Reson Imag 2015; 41(2):496–504
21. Schmid AI, Schewzow K, Fiedler GB, Goluch S, **Laistler E**, Wolzt M, Moser E, Meyerspeer M. *Exercising calf muscle T₂* time courses correlate with pH, PCr recovery and maximum oxidative phosphorylation*. NMR Biomed 2014; 27(5):553–560
22. **Laistler E**, Loewe R, Moser E. *Magnetic resonance micro-imaging of human skin vasculature in vivo at 3 Tesla*. Magn Reson Med 2011; 65(6):1718–1723

Patents

Navarro de Lara LI, Windischberger C, **Laistler E**, Sieg J, Moser E, Kühne A. *Method and system for combined transcranial magnetic stimulation (TMS) and functional magnetic resonance imaging (fMRI) studies*. US Patent US9924889B2. Priority date 2013, granted 2018.

Review activity

Reviewer for Scientific Reports, Magn Reson Med, NMR in Biomed, JMRI, MRI, Med Phys, Magn Reson Mater Phy, ...