

Curriculum Vitae - Ewald Moser, PhD

Founding and scientific director, MR Centre of Excellence, Medical University of Vienna, AT
Head MR division, Centre for Medical Physics and Biomedical Engineering, MUV, AT;
Adjunct Professor of Physics in Psychiatry, University of Pennsylvania Medical Centre, USA.

Education and Qualifications

1978 Diplomingenieur für Technische Physik, University of Technology, Graz, Austria
1981 Doktor der Technischen Wissenschaften, University of Technology, Vienna, Austria; Ph.D.
1981-88 Post-doctoral fellowship (Geneva, Graz, Vienna)
1988-90 Post-doctoral fellowship (Philadelphia, Oxford)
1991 Venia Docendi Medical Physics and Biophysics, Medical School, University of Vienna, Vienna, Austria
1999 Medical Physicist License, Austrian Society of Medical Physics.

Professional Experience

Postdoctoral Fellow, Institute for Solid State Physics, University of Geneva, Switzerland (1981/82)
Research Associate, Institute of Medical Physics, Medical School - University of Vienna, Austria (1982 - 1988)
E. Schrödinger fellow, Dpt. Biochemistry and Biophysics, University of Pennsylvania – School of Medicine, Philadelphia, USA (1988)
Assistant Professor, Institute of Medical Physics, Medical School - University of Vienna, Austria (1988 - 1991) and E. Schrödinger fellow, Dpt. Biochemistry, University of Oxford, Oxford, UK (1989/90)
Associate Professor in Medical Physics and Biophysics, Medical School - University of Vienna, Austria (1992 - 1997)
Associate Professor Medical Physics and Biophysics (100% tenured), Medical University of Vienna, Austria (1997 – present)
Head “NMR group”, Dept. Medical Physics and MR-unit, Vienna, Austria (1989 - 99)
Second affiliation: Department of Radiology, General Hospital/MUV (2000 – 2011)
Adjunct Professor of Physics in Psychiatry, University of Pennsylvania Medical School, Philadelphia, PA, USA (2001 – 2004, 2005 – 2008, 2009 – 2012, 2014 - 2017)

Publication Record

> 220 publications in peer-reviewed scientific journals and > 700 scientific presentations.
Current h-index = 47 over 6200 citations so far (Scopus Search 6/2015)

Awards and Honours

1977/78	Honours Award, University of Technology, Graz, Austria
1979	Honours Award of Government of Carinthia, Klagenfurt, Austria
1979/80	Honours Award, University of Technology, Vienna, Austria
1980/81	Honours Award, University of Technology, Vienna, Austria
1981	Research Award (BMWF) for University of Geneva, Switzerland
1981/82	Research Award (Austrian Chamber of Commerce) for University of Geneva, Switzerland
1988	E. Schrödinger Research Award (FWF) for University of Pennsylvania, USA,
1989/90	E. Schrödinger Research Award (FWF) for University of Oxford, UK
1990	Hoechst Award by the Dean of the Faculty of Medicine, University of Vienna

Editorial Board appointments

Member, Open Spectroscopy Journal (2008-2010)

Member, MAGMA Magn Reson Mater Phys (since 2009)

Associate Editor-in-Chief, World Journal of Radiology (2010-2013)

Member, European J. Nuclear Medicine Molecular Imaging Physics (since 2013)

Section Editor-in-Chief, Frontiers in Physics/Biomedical Physics (since 2013)

Functions in Professional Societies (highest rank)

2002-2003 Member of the Council (European Society of Magnetic Resonance in Medicine and Biology; ESMRMB)

2009-2013 Member of the Executive Board of ESMRMB

Delegate to European Union

1998-2002 Austrian Delegate to COST-B11

2003-2007 Austrian Delegate to COST-B21

Peer-reviewed grants (Principal Investigator or international partner)

European Union (COMAC-BME, COST, BIOMED); Human Frontier Science Program; Islandic Research Foundation (RANNIS), Iceland; NIH (USA); Austrian Research Foundation (FWF, FFG), Austria; Austrian National Bank (Jubilaeumsfonds der OeNB), Austria; WTZ, Austria.

Top 10 publications:

R.N. Boubela, K. Kalcher, W. Huf, E.M. Seidel, B. Derntl, L. Pezawas, C. Nasel, **E. Moser**. Functional MRI measurements of amygdala activation are confounded by stimulus correlated signal fluctuations in nearby veins draining distant brain regions. *Scientific Reports* **5** (2015) 10499

R. Sladky, A. Höflich, M. Küblböck, C. Kraus, P. Baldinger, **E. Moser**, R. Lanzenberger, C. Windischberger. Disrupted effective connectivity between the amygdala and orbitofrontal cortex in social anxiety disorder during emotion discrimination revealed by dynamic causal modeling for fMRI. *Cerebral Cortex* **25** (2015) 895-903

Rabl U, Meyer B, Diers K, Bartova L, Berger A, Mandorfer D, Popovic A, Scharinger C, Huemer J, Kalcher K, Pail G, Haslacher H, Perkmann T, Windischberger C, Brocke B, Sitte HH, Pollack DD, Dreher J-C, Kasper S, **Moser E**, Esterbauer H, Pezawas L. COMT VAL158MET impacts on morphological stress effects in healthy humans. *J Neuroscience*. **34** (2014) 9917-26

Boubela RN, Kalcher K, Nasel C, **Moser E**. Scanning fast and slow: Current limitations of 3 Tesla functional MRI and future potential. *Frontiers in Physics* **2** (2014) 1, doi:10.3389/fphy.2014.00001

Boubela RN, Huf W, Kalcher K, W. Huf, C. Kronerwetter, P. Filzmoser, **Moser E**. Beyond Noise: Using Temporal ICA to Extract Meaningful Information from High-frequency fMRI Fluctuations. *Front. Hum. Neurosci.* **7** (2013) 168

E. Moser, F. Stahlberg, M. Ladd, S. Trattnig. 7 Tesla MR – from research to clinical applications? *NMR Biomed* **25** (2012) 695-716

A. Weissenbacher, C. Kasess, F. Gerstl, R. Lanzenberger, **E. Moser**, C. Windischberger. Correlations and Anti-correlations in Resting State Functional Connectivity MRI: A Quantitative Comparison of Preprocessing Strategies. *Neuroimage* **47** (2009) 1408-16

B. Derntl, U. Habel, S. Robinson, C. Windischberger, I. Kryspin-Exner, R. C. Gur, **E. Moser**. Amygdala activation during recognition of emotions in a foreign ethnic group is associated with duration of stay. *Soc. Neurosci.* **4** (2009) 294 – 307

C. Kasess, C. Windischberger, R. Cunnington, L. Pezawas, **E. Moser**. The suppressive influence of SMA on M1 in motor imagery revealed by fMRI and dynamic causal modeling. *Neuroimage* **40** (2008) 828 - 37

R. Cunnington, C. Windischberger, L. Deecke, **E. Moser**. The preparation and execution of self-initiated and externally triggered movement: a study of event-related fMRI. *NeuroImage* **15** (2002) 373 – 85.

Selected scientific publications (out of last 5 years):

S. Goluch, A. Kühne, M. Meyerspeer, R. Kriegl, A.I. Schmid, T. Herrmann, J. Mallow, S.-M. Hong, Z.-H. Cho, J. Bernarding, E. Moser, E. Laistler. A form-fitted three channel ^{31}P , two channel ^1H transceive coil array for calf muscle studies at 7 T. *Magn. Reson. Med.* **73** (2015) 2376-89.

R.N. Boubela, K. Kalcher, W. Huf, E.M. Seidel, B. Derntl, L. Pezawas, C. Nasel, E. Moser. Functional MRI measurements of amygdala activation are confounded by stimulus correlated signal fluctuations in nearby veins draining distant brain regions. *Scientific Reports* **5** (2015) 10499

L. Bartova, Meyer BM, Diers K, Rabl U, Scharinger C, Popovic A, Pail G, Kalcher K, Boubela RN, Huemer J, Mandorfer D, Windischberger C, Sitte HH, Kasper S, Praschak-Rieder N, Moser E, Brocke B, Pezawas L. Reduced Default Mode Network Suppression during a Working Memory Task in Remitted Major Depression. *J. Psych. Research* **64** (2015) 9-18.

R. Kriegl, J.-C. Ginefri, M. Poirier-Quinot, L. Darasse, S. Goluch, A. Kuehne, E. Moser, E. Laistler. A novel, inductive decoupling technique for flexible transceiver array of monolithic transmission line resonators. *Magn. Reson. Med.* **73** (2015) 1669-81.

R. Sladky, A. Höflich, M. Küblböck, C. Kraus, P. Baldinger, E. Moser, R. Lanzenberger, C. Windischberger. Disrupted effective connectivity between the amygdala and orbitofrontal cortex in social anxiety disorder during emotion discrimination revealed by dynamic causal modeling for fMRI. *Cerebral Cortex* **25** (2015) 895-903

K. Schewzow, G. Fiedler, M. Meyerspeer, S. Goluch, E. Laistler, M. Wolzt, E. Moser, A.I. Schmid. Dynamic ASL and BOLD MRI in exercising calf muscle at 7T – a feasibility study. *Magn. Reson. Med.* **73** (2015) 1190-5.

E. Laistler, M. Poirier-Quinot, S. Lambert, R-M Dubuisson, O. M. Girard, E. Moser, L. Darrasse, J-C Ginefri. Sub-nanoliter resolution MRI using a superconducting surface coil at 1.5 T. *J. Magn. Reson. Imag.* **41** (2015) 496-504.

C. Nasel, R. Boubela, K. Kalcher, E. Moser. Time-To-Peak Distribution Imaging (TTP-DI): application in stroke patients. *PLoS One* **9** (2014) e114999

Huf W, Kalcher K, Boubela RN, Rath G, Filzmoser P, Moser E. On the generalizability of rs-fMRI regional homogeneity machine learning classifiers. *Front. Hum. Neurosci.* **8** (2014) 502

Rabl U, Meyer B, Diers K, Bartova L, Berger A, Mandorfer D, Popovic A, Scharinger C, Huemer J, Kalcher K, Pail G, Haslacher H, Perkmann T, Windischberger C, Brocke B, Sitte HH, Pollack DD, Dreher J-C, Kasper S, Moser E, Esterbauer H, Pezawas L. COMT VAL158MET impacts on morphological stress effects in healthy humans. *J Neurosci.* **34** (2014) 9917-26

K. Kalcher, R. N. Boubela, W. Huf, L. Bartova, C. Kronnerwetter, B. Derntl, L. Pezawas, P. Filzmoser, C. Nasel, E. Moser. The Spectral Diversity of Resting-State Fluctuations in the Human Brain. *PLoS One* **9** (2014) e93375

Scharinger C*, Rabl U*, Kasess CH, Meyer BM, Hofmaier T, Diers K, Bartova L, Pail G, Huf W, Uzelac Z, Hartinger B, Kalcher K, Perkmann T, Haslacher H, Meyer-Lindenberg A, Kasper S, Freissmuth M, Windischberger C, Willeit M, Lanzenberger R, Esterbauer H, Brocke B, Moser E, Sitte HH, Pezawas L. Platelet serotonin transporter function predicts Default-mode network activity. *PLoS One* **9** (2014) e92543

A.I. Schmid, K. Schewzow, G. Fiedler, S. Goluch, E. Laistler, M. Wolzt, E. Moser, M. Meyerspeer. Exercising calf muscle T2*-weighted signal correlates with pH, PCr recovery and maximum oxidative phosphorylation. *NMR Biomed.* **27** (2014) 553-60

M. Votinov, J. Pripfl, C. Windischberger, K. Kalcher, A. Zimprich, F. Zimprich, E. Moser, C. Lamm, U. Sailer. A genetic polymorphism of the endogenous opioid dynorphin modulates monetary reward anticipation in the corticostriatal loop. *PLoS One* **9** (2014) e89954

J. Szendrői, K. Kaul, L. Klock, K. Straßburger, A.I. Schmid, M. Chmelik, M. Kacerovsky, G. Kacerovsky-Bielez, T. Prikoszovich, A. Brehm, M. Krssak, S. Gruber, M. Krebs, A. Kautzky-Willer, E. Moser, G. Pacini, M. Roden. Lower fasting muscle mitochondrial activity relates to hepatic steatosis in humans. *Diabetes Care* **37** (2014) 468-74

Boubela RN, Kalcher K, Nasel C, Moser E. Scanning fast and slow: Current limitations of 3 Tesla functional MRI and future potential. *Frontiers in Physics* **2** (2014) 1, doi:10.3389/fphy.2014.00001

G. Schiepek, I. Tominschek, S. Heinzl, M. Aigner, M. Dold, A. Unger, G. Lenz, C. Windischberger, E. Moser, M. Plöderl, J. Lutz, T. Meindl, M. Zaudig, O. Pogarell, S. Karch. Discontinuous Patterns of Brain Activation in the Psychotherapy Process of Obsessive Compulsive Disorder: Converging Results from Repeated fMRI and Daily Self-Reports. *PLoS One* **8** (2013) e71863

Townsend D, Cheng Z, Georg D, Drexler W, Moser E. „Grand challenges in Biomedical Physics“, *Frontiers in Physics* **1**:1. doi: 10.3389/fphy.2013.00001, EPub May 24

Schöpf V, Fischmeister FPhS, Windischberger C, Gerstl F, Wolzt M, Karlsson KÅ, Moser E. Effects of individual glucose levels on the neuronal correlates of emotions. *Frontiers in Human Neuroscience* **7** (2013) 212, EPub May 21, DOI:10.3389/fnhum.2013.00212

Boubela RN, Huf W, Kalcher K, W. Huf, C. Kronerwetter, P. Filzmoser, Moser E. Beyond Noise: Using Temporal ICA to Extract Meaningful Information from High-frequency fMRI Fluctuations. *Frontiers in Human Neuroscience* **7** (2013) 168, EPub May 1, DOI:10.3389/fnhum.2013.00168

T. Beyer, E. Moser. “MR/PET or PET/MR: does it matter?” *Magn Reson Mater Phys* **26** (2013) 1-4

K. Kalcher, R. N. Boubela, W. Huf, P. Filzmoser, B. Biswal, P. Baldinger, U. Sailer, S. Kasper, C. Lamm, R. Lanzenberger, E. Moser, C. Windischberger. RESCALE: Voxel-specific Task-fMRI Scaling Using Resting State Fluctuation Amplitude. *Neuroimage* **70** (2013) 80-88

R. Sladky, P. Baldinger, G. Kranz, J. Troestl, A. Hoefflich, R. Lanzenberger, E. Moser, C. Windischberger. High resolution functional MRI of the human amygdala at 7 Tesla. *Eur J Radiol* **82** (2013) 728-33, EPub Dec 2, 2011, doi:10.1016/j.ejrad.2011.09.025

R. Sladky, A. Hoefflich, J. Atanelov, C. Kraus, P. Baldinger, E. Moser, R. Lanzenberger, C. Windischberger. Increased neural habituation in the amygdala and orbitofrontal cortex in social anxiety disorder revealed by fMRI. *PLoS One* **7** (2012) e50050

Kalcher K, Huf W, Boubela RN, Filzmoser P, Pezawas L, Biswal B, Kasper S, Moser E, Windischberger C. Fully Exploratory Network Independent Component Analysis of the 1000 Functional Connectomes Database. *Frontiers in Human Neuroscience* **6** (2012) 301

M. Meyerspeer, S. Robinson, C.I. Nabuurs, T. Scheenen, A. Schoisengeier, E. Unger, G.J. Kemp, E. Moser. Comparing Localized and Nonlocalized Dynamic 31P Magnetic Resonance Spectroscopy in Exercising Muscle at 7 T. *Magn Reson Med* **68** (2012) 1713-23

J. Majdandžić, H. Bauer, C. Windischberger, E. Moser, E. Engl, C. Lamm. The importance of being human: Conflict-related neuronal responses during moral decision making about humanized potential victims. *PLoS One* **7** (2012) 10:e47698

- E. Moser, F. Stahlberg, M. Ladd, S. Trattnig. 7 Tesla MR – from research to clinical applications? *NMR Biomed* **25** (2012) 695-716. (review)
- M. Andreas, A. I. Schmid, D. Doberer, K. Schewzow, S. Weisshaar, G. Heinze, M. Bilban, E. Moser, M. Wolzt. Heme arginate improves reperfusion patterns after ischemia: A randomized, placebo controlled trial in healthy male subjects. *J Cardiovasc MR* **14** (2012) 55, Epub Aug 2
- B. Derntl, U. Habel, S. Robinson, C. Windischberger, I. Kryspin-Exner, R. C. Gur, E. Moser. Culture but not gender modulates amygdala activation during explicit emotion recognition. *BMC Neuroscience* **13** (2012) 54, Epub May 29
- R. N. Boubela, W. Huf, K. Kalcher, R. Sladky, P. Filzmoser, L. Pezawas, S. Kasper, C. Windischberger, E. Moser. A Highly Parallelized Framework for Computationally Intensive MR Data Analysis. *MAGMA* **25** (2012) 313-20
- M. Meyerspeer, S. Robinson, C.I. Nabuurs, T. Scheenen, A. Schoisengeier, E. Unger, G.J. Kemp, E. Moser. Comparing Localized and Nonlocalized Dynamic 31P Magnetic Resonance Spectroscopy in Exercising Muscle at 7 T. *Magn Reson Med* **68** (2012) 1713-23
- A.I. Schmid, V. Schrauwen-Hinderling, M. Andreas, M. Wolzt, E. Moser, M. Roden. ATP synthesis measured by different ³¹P MRS techniques in resting, ischemic, and exercising muscle. *Magn Reson Med* **67** (2012) 898-905
- G. Kacerovsky-Bielez, M. Kacerovsky, M. Chmelik, M. Farukuoye, C. Ling, R. Pokan, H. Tschan, J. Szendroedi, A. I. Schmid, S. Gruber, C. Herder, M. Wolzt, E. Moser, G. Pacini, G. Smekal, L. Groop, M. Roden. A single nucleotide polymorphism associates with the response of muscle ATP synthesis to long-term exercise training in relatives of type 2 diabetic humans. *Diabetes Care* **35** (2012) 350-7
- R. Sladky, K.J. Friston, J. Troestl, R. Cunningham, E. Moser, C. Windischberger. Slice timing effects and their correction in fMRI. *Neuroimage* **58** (2011) 588-94
- M. Andreas, A.I. Schmid, M. Keilani, D. Doberer, J. Bartko, R. Crevenna, E. Moser, M. Wolzt. Effect of ischemic preconditioning in skeletal muscle measured by functional magnetic resonance imaging and spectroscopy: a randomized crossover trial. *J. Cardiovascular Magn. Reson.* **13** (2011) 32, doi:10.1186/1532-429X-13-32
- E. Laistler, R. Loewe, E. Moser. Magnetic resonance microscopy of human skin vasculature in vivo at 3 Tesla. *Magn Reson Med* **65** (2011) 1718-23
- A. Hahn, P. Stein, C. Windischberger, A. Weissenbacher, C. Spindelegger, E. Moser, S. Kasper, R. Lanzenberger. Reduced resting state functional connectivity between amygdala and orbitofrontal cortex in social anxiety disorder. *Neuroimage* **56** (2011) 881-9
- M. Meyerspeer, T. Scheenen, Th. Mandl, E. Unger, E. Moser. Semi-LASER localized dynamic 31P MRS in exercising muscle at ultra-high magnetic field. *Magn Reson Med* **65** (2011) 1207-15
- V. Schöpf, C. Windischberger, C.H. Kasess, S. Robinson, F.Ph.S. Fischmeister, J. Albrecht, A.M. Kleemann, R. Kopietz, M. Wiesmann, E. Moser. Model-free fMRI group analysis using FENICA. *Neuroimage* **55** (2011) 185-93
- E. Moser, M. Meyerspeer, F. Ph. S. Fischmeister, G. Grabner, H. Bauer, S. Trattnig. Windows on the human body - In vivo high-field magnetic resonance research and applications in medicine and psychology. *Sensors* **10** (2010) 5724-57
- K. Å. Karlsson, C. Windischberger, F. Gerstl, W. Mayr, J. M. Siegel, E. Moser. Modulation of hypothalamus and amygdalar activation levels with stimulus valence. *Neuroimage* **51** (2010) 324-8
- C. H. Kasess, K. E. Stephan, A. Weissenbacher, L. Pezawas, E. Moser, C. Windischberger. Multi-Subject Analysis with Dynamic Causal Modeling. *Neuroimage* **49** (2010) 3065-74.