

## LEISTUNGSBERICHT 2008

*Exzellenzzentrum Hochfeld-MR am Zentrum für Biomedizinische Technik und Physik, Bereich Medizinische Physik und Univ. Klinik für Radiodiagnostik, Medizinische Universität Wien*

**Ko-Leiter:** a.o. Univ. Prof. Dipl. Ing. Dr. Ewald Moser; Scientific Director.  
Adjunct Professor of Physics in Psychiatry, University of Pennsylvania Medical School, Philadelphia (USA)

**Mitarbeiter:** DI W. Bogner (Radiodiagnostik), Mag. M. Chmelik (K.Landsteiner-Institut), Dr. Mag. F. Ph. Fischmeister, DI M. Fürsatz, Dr. F. Gerstl, Mag. C. Kaseß, DI E. Laistler, DI Th. Mandl, Dr. DI M. Meyerspeer, DI Z. Morsli, Dr. DI A.I. Schmid (Klin. Pharmakologie), Dr. DI V. Schöpf, A. Weissenbacher, PD Dr. DI C. Windischberger, Mag. S. Zbyn (Radiodiagnostik).

**Arbeitsgebiete:** Relaxometrie, in vivo Multikern-Spektroskopie, Dynamische MR-Spektroskopie, MRI/MRS-QK, NMR-Mikroimaging und -Mikroskopie, Funktionelles Neuroimaging, Funktionelle Konnektivität, Diffusion, Parametersensitive Bildgebung, Tumorspektroskopie, NMR-Lehre

**Projekte:** 6 (1 - §27, 1 – RANNIS, 3 – FWF, 1 - ÖNB).  
Mitarbeit in mehreren klinischen Forschungsprojekten

**Kooperationen:** Univ. Kliniken f. Radiodiagnostik, Physikalische Medizin und Rehabilitation und Psychiatrie, Klinische Pharmakologie, Fakultät f. Psychologie Uni Wien, Karl-Landsteiner-Institut (Wien), Wilheminspital (A), Departments of Radiology and Psychiatry - Univ. of Pennsylvania (USA), Department of Musculoskeletal Science, The University of Liverpool (UK), U2R2M - Université Paris-Sud (F), Biomedical Engineering, University of Reykjavik (Island), Psychiatrische Klinik, Universität Aachen (D), Bruker Biospin (D), Siemens Medical (D).

**Vorträge:** 6

**Posterpräsentationen:** 19

**Publikationen:** Top: 7 Standard: 5 Sonstige: 1  
im Druck: 4 in Begutachtung: 7

**Diplomarbeiten:** laufend: 1, abg.: 0 **Dissertationen:** laufend: 9, abg.: 1  
**Habilitationen:** 1

## Tagungen: Poster - Vorträge 2008

- V1) Cardiovascular Research Days, Weissensee, Austria, 17-19 January 2008.  
M. Andreas, M. Wolzt, A. I. Schmid, E. Moser, M. Roden. The effects of post-conditioning on intramuscular high energy phosphate levels.
- V2) ECNP Workshop on Neuropsychopharmacology for Young Scientists in Europe, 6-9 March 2008 Nizza (F). F. Gerstl, C. Windischberger, E. Moser, S. Kasper, R. Lanzenberger. Molecular Imaging of early visual cortex by combining PET and fMRI.
- V3) 16th ISMRM Scientific Meeting, Toronto, ON, Canada, 3-9 May 2008  
S. Robinson, N. Soldati, G. Basso, U. Sailer, J. Jovicich, L. Bruzzone, I. Kryspin Exner, H. Bauer, E. Moser. A Resting State Network in the Basal Ganglia.
- V4) 16th ISMRM Scientific Meeting, Toronto, ON, Canada, 3-9 May 2008  
M. Meyerspeer, T. Mandl, M. Reichel, W. Mayr, C. Hofer, H. Kern, E. Moser. Mapping functional electrical stimulation in denervated thigh muscles of paraplegic patients with T2 parameter imaging.
- V5) 16th ISMRM Scientific Meeting, Toronto, ON, Canada, 3-9 May 2008  
M. Fuersatz, C. Windischberger, K. Æ. Karlsson, E. Moser. Successful fMRI of the hypothalamus at 3T.
- V6) 16th ISMRM Scientific Meeting, Toronto, ON, Canada, 3-9 May 2008  
A. Weissenbacher, C. Windischberger, R. Lanzenberger, E. Moser. Efficient correction for artificial signal fluctuations in resting-state fMRI-data.
- V7) 16th ISMRM Scientific Meeting, Toronto, ON, Canada, 3-9 May 2008  
M. Chmelik, A. I. Schmid, S. Gruber, J. Szendroedi, M. Krssak, S. Trattnig, E. Moser, M. Roden. 31P 3D k-space weighted MRSI with adiabatic excitation: 3D absolute quantification of phosphorus metabolites in human liver.
- V8) 14<sup>th</sup> Annual Meeting of OHMB, Melbourne, AUS, 15-19 June 2008  
F. Gerstl, R. Lanzenberger, E. Moser, C. Windischberger. Combining fMRI and PET for the multimodal definition of early visual areas in humans
- V9) 14<sup>th</sup> Annual Meeting of OHMB, Melbourne, AUS, 15-19 June 2008  
M. Fuersatz, C. Windischberger, K. Æ. Karlsson, W. Mayr, E. Moser.  
Valence - dependent modulation of hypothalamic activity
- V10) 14<sup>th</sup> Annual Meeting of OHMB, Melbourne, AUS, 15-19 June 2008  
C. Kasess, R. Lanzenberger, L. Pezawas, E. Moser, C. Windischberger.  
Feedback Connections within Low-Level Emotion Processing Network Revealed by Dynamic Causal Modeling
- V11) 14<sup>th</sup> Annual Meeting of OHMB, Melbourne, AUS, 15-19 June 2008

B. Hartinger, S. Russo-Schwarzbaum, C. Kasess, B. Kandler, C. Scharinger, G. Pail, A. Erfurth, H. Esterbauer, C. Windischberger, S. Kasper, E. Moser, L. Pezawas  
Depression vulnerability is reflected in subgenual cingulate function

- V12) 14<sup>th</sup> Annual Meeting of OHMB, Melbourne, AUS, 15-19 June 2008  
A. Weissenbacher, R. Lanzenberger, E. Moser, C. Windischberger. Increasing specificity of resting-state fMRI-data using multiple regression analysis
- V13) 25th ESMRMB Scientific Meeting, Valencia, Spain, 2-4 October 2008  
E.V. Moser, C. Windischberger, F. Gerstl, K.AE. Karlsson  
Very funny and sad stimuli modulate BOLD-response in the human hypothalamus
- V14) 25th ESMRMB Scientific Meeting, Valencia, Spain, 2-4 October 2008  
M. Meyerspeer, J. Szendroedi, M. Roden, E. Moser  
Reduced PCr recovery after exercise in a MELAS patient
- V15) 25th ESMRMB Scientific Meeting, Valencia, Spain, 2-4 October 2008  
A. Weissenbacher, C. Kasess, R. Lanzenberger, E. Moser, C. Windischberger  
Are anticorrelated resting-state functional-connectivity networks just artifacts?
- V16) 25th ESMRMB Scientific Meeting, Valencia, Spain, 2-4 October 2008  
E. Laistler, S. M. Friedl, H. Heger, C. Duliban, U. Habel, E. Moser, E. Heuberger  
FMRI-based investigation of the effects of 1,8-cineol on the human CNS
- V17) 25th ESMRMB Scientific Meeting, Valencia, Spain, 2-4 October 2008  
C. Windischberger, A. Weissenbacher, F. Gerstl, R. Lanzenberger, E. Moser  
Mapping Amygdalar Functional Connectivity
- V18) 25th ESMRMB Scientific Meeting, Valencia, Spain, 2-4 October 2008  
A.I. Schmid, M. Andreas, M. Meyerspeer, E. Moser, M. Wolzt  
Metabolic response to post-ischemic flow impairment measured by 31P MRS
- V19) 7. Dreiländersymposium f. Biologische Psychiatrie, Goettingen (D), 9.-11. October 2008  
B. Hartinger, Nagl M., Kasess C., Kandler B., Scharinger C., Huf W., Pail G., Kalcher K., Russo-Schwarzbaum S., Erfurth A., Esterbauer H., Windischberger C., Kasper S., Moser E., Pezawas L. Preliminary Data Suggest: Depression Vulnerability is Reflected in Midcingulate Cortex Structure and Function.
- V20) 8th International Forum on Mood and Anxiety Disorders, Vienna (A), 12-14 November, 2008. Hartinger B, Nagl M, Kasess C, Kandler B, Scharinger C, Huf W, Pail G, Kalcher K, Russo-Schwarzbaum S, Erfurth A, Esterbauer H, Windischberger C, Kasper S, Moser E, Pezawas L. Functional and Structural Alterations of Midcingulate Cortex Reflect Depression Vulnerability.
- V21) 8th International Forum on Mood and Anxiety Disorders, Vienna (A), 12-14 November, 2008. Kasess C., Hartinger B., Kandler B., Scharinger C., Huf W., Pail G., Nagl M., Kalcher K., Russo-Schwarzbaum S., Erfurth A., Esterbauer H., Windischberger C., Kasper S., Moser E., Pezawas L. Effective Connectivity as a Depression Vulnerability

Marker.

- V22) 8th International Forum on Mood and Anxiety Disorders, Vienna (A), 12-14 November, 2008. Kalcher K, Scharinger C, Kasess C, Kandler B, Hartinger B, Huf W, Pail G, Nagl M, Russo-Schwarzbaum S, Erfurth A, Esterbauer H, Windischberger C, Kasper S, Moser E, Pezawas L . Subcortical Alterations of Brain Morphology in Healthy and Remitted Depressed Subjects.
- V23) 8th International Forum on Mood and Anxiety Disorders, Vienna (A), 12-14 November, 2008. Nagl M, Kandler B, Scharinger C, Hartinger B, Kasess C, Huf W, Pail G, Kalcher K, Russo-Schwarzbaum S, Erfurth A, Esterbauer H, Windischberger C, Kasper S, Moser E, Pezawas L . Surface-Based Analysis of Cortical Thickness in Healthy Subjects and Remitted Depressed Patients.

### **Eingeladene Vorträge:**

- E1) April 18, 2008 Dr. K-A. Karlsson, Biomedical Engineering, School of Science and Engineering, University of Reykjavik (Iceland), „High-field fMRI of Amygdala and Hypothalamus: from 3T to 7T”, E. Moser, C. Windischberger
- E2) June 28, 2008 Prof. G. Schiepek, PMU Salzburg (A). “Hochfeld fMRT: von 3T zu 7T”, E. Moser, C. Windischberger

Man beachte: Namen der Vortragenden unterstrichen

### **PUBLIKATIONEN 2008**

- P1) B. Derntl, I. Kryspin-Exner , E. Fernbach, **E. Moser**, U. Habel. „Emotion recognition accuracy in healthy young females is associated with cycle phase“, *Hormones and Behavior* **53** (2008) 90 - 5
- P2) **C. Windischberger**, R. Cunnington, C. Lamm, R. Lanzenberger, H. Langenberger, L. Deecke, H. Bauer, **E. Moser**. “Time-resolved Analysis of fMRI signal changes using Brain Activity Movies”, *J. Neurosci. Methods* **169** (2008) 222 - 30
- P3) **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
- P4) **C. Bayreder**, R. Schön, D. Georg, **E. Moser**, **A. Berg**. “The spatial resolution in dosimetric imaging with normoxic polymer-gels investigated with the dose modulation transfer approach”, *Med. Phys.* **35** (2008) 1756 - 69

- P5) **F. Gerstl, C. Windischberger**, M. Mitterhauser, W. Wadsak, A. Holik, K. Kletter, **E. Moser**, S. Kasper, R. Lanzenberger. Multimodal imaging of human early visual cortex by combining functional and molecular measurements with fMRI and PET. *Neuroimage*, **41** (2008) 204 - 11
- P6) **A.I. Schmid, M. Chmelik**, J. Szendrödi, M. Krssak, A. Brehm, **E. Moser**, M. Roden. “Quantitative ATP Synthesis in Human Liver Measured by Localized <sup>31</sup>P Spectroscopy Employing the Magnetization Transfer Experiment”, *NMR Biomed* **21** (2008) 437 - 43
- P7) **M. Meyerspeer, T. Mandl**, M. Reichel, W. Mayr, H. Kern, **E. Moser**. “Effects of functional electrical stimulation in thigh muscle of denervated paraplegic patients mapped with T2 imaging”, *Mag. Reson. Mater. Phy.* **21** (2008) 219 - 26
- P8) S.D. Robinson, J. Pripfl, H. Bauer, **E. Moser**. „The impact of EPI voxel size on SNR and BOLD sensitivity in the anterior medio-temporal lobe: a comparative group study of deactivation of the Default Mode”, *Mag. Reson. Mater. Phy.* **21** (2008) 279 - 90
- P9) **T. Mandl, M. Meyerspeer**, M. Reichel, H. Kern, C. Hofer, W. Mayr, **E. Moser**. “Functional Electrical Stimulation of long term denervated, degenerated human skeletal muscle: estimating activation using T2-parameter Magnetic Resonance Imaging methods”, *Artificial Organs* **38** (2008) 604 - 8
- P10) U. Sailer, S. Robinson; F. P. Fischmeister; D. König; C. Oppenauer; B. Lueger-Schuster; **E. Moser**; I. Kryspin-Exner; H. Bauer. “Altered reward processing in the nucleus accumbens and mesial prefrontal cortex of patients with posttraumatic stress disorder“, *Neuropsychologia* **46** (2008) 2836 - 44
- P11) B. Derntl, **C. Windischberger**, S. Robinson, E. Lamplmayr, I. Kryspin-Exner, R. C. Gur, **E. Moser**, U. Habel. “Facial emotion recognition and amygdala activation are associated to the menstrual cycle”, *Psychoneuroendocrinology* **33** (2008) 1031 - 40
- P12) **M. Chmelik, A.I. Schmid**, S. Gruber, J. Szendroedi, M. Krssak, S. Trattinig, **E. Moser**, M. Roden. “3D high-resolution magnetic resonance spectroscopic imaging for absolute quantification of <sup>31</sup>P metabolites in human liver”, *Magn. Res. Med.* **60** (2008) 796 - 802
- P13) S. Gruber, K. Pinker, F. Riederer, **M. Chmelík**, A. Stadlbauer, M. Bittšanský, V. Mlynárik, R. Frey, W. Serles, O. Bodamer, **E. Moser**. “Metabolic changes in the normal ageing brain: Consistent findings from short and long echo time proton spectroscopy”, *Europ. J. Radiol.* **68** (2008) 320 - 7

Man beachte: Namen der **Mitarbeiter** sind **fett** gedruckt.