

Dr. Kâmil Uludağ

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Citizenship German
Birth date/place 05.06.1972 / Gündüz, Turkey

Main Scientific interests

- Physical and physiological basis of fMRI
- Multi-modal imaging (simultaneous PET-MRI, EEG-MRI)
- Measuring cerebral blood flow using arterial spin labeling MRI in healthy subjects and stroke patients

Education & Professional Experience

2008-present Editorial Board of **Frontiers of Neuroenergetics**

2008-present Editorial Board of **NeuroImage**

2007-2009 Chair of the study group “**Current Issues of Brain Function**” of the International Society for Magnetic Resonance in Medicine (ISMRM)

2009 Organizer of the ‘**fMRI course**’ of the European Society for Magnetic Resonance in Medicine and Biology (ESMRMB)

2004-present **Head of human functional imaging**
High Field MR Center
Max-Planck-Institute for Biological Cybernetics

2003-2004 Postdoctorate Researcher in functional MRI
(Supervisor: Prof. Dr. Richard B. Buxton)
Center for Functional Magnetic Resonance Imaging
University of California, San Diego

September 2003 Ph.D. Physics, Humboldt Universität, Berlin

1999-2003 Graduate Student in near-infrared spectroscopy and functional MRI
(Supervisor: Prof. Dr. Arno Villringer)
Clinical Research Group
Humboldt Universitaet, Berlin

September 1997 Diploma Physics Technische Universität, Berlin
(awarded with the 'Hereaus Price')

Book

K. Ugurbil, K. Uludağ, L. Berliner, "Functional MRI", Springer publisher (in preparation).

Book chapters

1. K. Uludağ, D.J. Dubowitz, R. B. Buxton, "Basic Principles of functional MRI", In R. Edelman, J. Hesselink, M. Zlatkin, editors, *Clinical MRI*, pages 249-287. Elsevier, San Diego, 2005
2. K. Ugurbil, W. Chen, N. Harel, P. van de Moortele, X. Hu, K. Uludağ. MRI of Brain Function. In *Encyclopedia of Biomedical Engineering*, pages 1-24. 2006

Peer-reviewed Publications

30. K. Uludağ, B. Müller-Bierl, K. Ugurbil, "An integrative model for neuronal activity-induced signal changes for gradient and spin echo functional imaging", *Neuroimage* (in press).
29. A. Thielscher, A. Reichenbach, K. Ugurbil, K. Uludağ, "The cortical site of visual suppression by Transcranial Magnetic Stimulation", *Cerebral Cortex* (in press).
28. K. Uludağ, A. Evans, V. Della-Maggiore, G. Murer, E. Amaro, O. Sierra, P. Valdés-Hernandez, V. Medina, P. Valdés-Sosa, "Latin American Brain Mapping Network", *NeuroImage* (in press).
27. K. Uludağ, A. Evans, V. Della-Maggiore, G. Murer, E. Amaro, O. Sierra, P. Valdés-Hernandez, V. Medina, P. Valdés-Sosa, "Latin American Brain Mapping Network", *International Journal for Bioelectromagnetism* **10(4)**, 281-299 (2008).
26. S. Sadaghiani, K. Ugurbil, K. Uludağ, "Neural activity-induced modulation of BOLD post-stimulus undershoot independent of the positive signal", *Magnetic Resonance Imaging* (in press).
25. M. Cavusoglu, J. Pfeuffer, K. Ugurbil, K. Uludağ, "Comparison of Pulsed Arterial Spin Labeling Encoding and Absolute Perfusion Quantification Schemes", *Magnetic Resonance Imaging* (in press).
24. K. Uludağ, "Transient and sustained BOLD responses to sustained stimulation", *Magnetic Resonance Imaging*, **26(7)**, 863-9 (2008).
23. A.C. Zappe, K. Uludağ, N.K. Logothetis, "Direct measurement of oxygen extraction with fMRI using 6% CO₂ inhalation.", *Magnetic Resonance Imaging*, **26(7)**, 961-7 (2008).
22. E. Yacoub, K. Uludağ, K. Ugurbil, N. Harel, "Decreases in ADC observed in tissue areas during activation in cat visual cortex at 9.4 T using high diffusion sensitization", *Magnetic Resonance Imaging*, **26(7)**, 889-96 (2008).
21. B. Yeşilyurt, K. Ugurbil, K. Uludağ, "Dynamics and nonlinearities of BOLD response at very short stimulus durations", *Magnetic Resonance Imaging*, **26(7)**, 853-62 (2008).
20. A.C. Zappe, K. Uludağ, N.K. Logothetis, "The Influence of Moderate Hypercapnia on Neural Activity in the Anesthetized Nonhuman Primate", *Cerebral Cortex*, **18(11)**, 2666-73 (2008).
19. M.S. Judenhofer, H.F. Wehrl, D.F. Newport, C. Catana, S.B. Siegel, M. Becker, A. Thielscher,

M. Kneilling, M. Lichy, M. Eichner, K. Klingel, G. Reischl, S. Widmaier, M. Röcken, R.E. Nutt, H.-J. Machulla, K. Uludağ, S.R. Cherry, C.D. Claussen, B.J. Pichler, "Simultaneous PET/MRI: A new Approach for Functional and Morphological Imaging", *Nature Medicine* **14(4)**, 459-65 (2008).

18. B. M. Mueller-Bierl, K. Uludağ, P. L. Pereira, F. Schick, "Magnetic field distribution and signal decay in functional MRI in very high fields (up to 9.4 T) using Monte Carlo diffusion modeling", *International Journal of Biomedical Imaging*, Article ID 70309 (2007).

17. J. Steinbrink, T. Fischer, H. Kuppe, R. Hetzer, K. Uludağ, H. Obrig, W. M. Kuebler, "Relevance of depth resolution for cerebral blood flow monitoring by near-infrared spectroscopic bolus tracking during cardiopulmonary bypass", *J Thorac Cardiovasc Surg.*, **132(5)**, 1172-8 (2006).

16. N. Harel, K. Ugurbil, K. Uludağ, E. Yacoub, "Frontiers of Brain Mapping using MRI", *Journal of Magnetic Resonance in Medicine*, **23(6)**, 945-957 (2006).

15. M. L. Schroeter, T. Kupka, T. Mildner, K. Uludağ, Y. von Cramon, "Investigating the post-stimulus undershoot of the BOLD signal - a simultaneous fMRI and NIRS study", *Neuroimage*, **30(2)**, 349-58 (2005).

14. R. B. Buxton, K. Uludağ, D. J. Dubowitz, T. T. Liu, "Modeling the hemodynamic response to brain activation", *Neuroimage* **23(S1)**, S220-S233 (2004).

13. T. T. Liu, Y. Behzadi, K. Restom, K. Uludağ, K. Lu, G. T. Buracas, D. J. Dubowitz, R. B. Buxton, "Caffeine alters the temporal dynamics of the visual BOLD response", *Neuroimage* **23(4)**, 1402-13 (2004).

12. R. B. Buxton, K. Uludağ, D. J. Dubowitz, "Investigating the physiology of brain activation with fMRI", *Proceedings of SPIE* **5369**, 207-18 (2004).

11. K. Uludağ, D. J. Dubowitz, E. J. Yoder, K. Restom, T. T. Liu, R. B. Buxton, "Coupling of cerebral blood flow and oxygen metabolism during physiological activation and deactivation measured with fMRI", *Neuroimage* **23(1)**, 148-55 (2004).

10. K. Uludağ, R. B. Buxton, "Measuring the effects of indomethacin on changes in cerebral oxidative metabolism and cerebral blood flow during sensorimotor activation", *Magnetic Resonance in Medicine* **51(5)**, 1088-1089 (2004).

9. K. Uludağ, J. Steinbrink, A. Villringer, H. Obrig, "Separability and cross talk: optimizing dual wavelength combinations for near-infrared spectroscopy of the adult head", *Neuroimage* **22(2)**, 583-89 (2004).

8. M. L. Schroeter, M. B. Buecheler, K. Mueller, K. Uludağ, H. Obrig, G. Lohmann, M. Tittgemeyer, A. Villringer, Y. Von Cramon, "Towards a standard analysis for functional near-infrared spectroscopy", *Neuroimage* **21(1)**, 283-90 (2004).

7. B.-M. Mackert, G. Wübbeler, S. Leistner, K. Uludağ, H. Obrig, A. Villringer, L. Trahms, G. Curio, "Neurovascular coupling analyzed non-invasively in the human brain", *Neuroreport* **15(1)**, 63-66 (2004).

6. K. Uludağ, J. Steinbrink, M. Kohl-Bareis, R. Wenzel, A. Villringer, H. Obrig, "Cytochrome-c-oxidase redox changes during visual stimulation measured by near-infrared spectroscopy cannot be explained by a mere cross talk artefact", *Neuroimage* **22(1)**, 109-119 (2004).

5. S. J. Schreiber, U. Franke, F. Doepp, E. Staccioli, K. Uludağ und J. M. Valdueza, "Dopplersonographic measurement of global cerebral circulation time using echo contrast

enhanced ultrasound in normal individuals and patients with arteriovenous malformations”, *Ultrasound in Medicine and Biology* **28(4)**, 453-8 (2002).

4. H. Obrig, H. Israel, M. Kohl-Bareis, K. Uludağ, R. Wenzel, B. Müller, G. Arnold, A. Villringer, “Habituation of the Visually Evoked Potential (VEP) and its Vascular Response: Implications for Neurovascular Coupling in the Healthy Adult”, *Neuroimage* **17(1)**, 1-18 (2002).

3. M. Kohl, H. Obrig, J. Steinbrink, J. Malak, K. Uludağ, A. Villringer, “Noninvasive monitoring of cerebral blood flow by a dye bolus method: Separation of brain from skin and skull signals”, *Journal of Biomedical Optics* **7(3)**, 464-470, (2002).

2. K. Uludağ, M. Kohl, J. Steinbrink, H. Obrig, A. Villringer, “Cross talk in the Lambert-Beer calculation for near-infrared wavelengths estimated by Monte Carlo simulations”, *Journal of Biomedical Optics* **7(1)**, 51–59 (2002).

1. M. Kohl, H. Obrig, J. Steinbrink, J. Malak, K. Uludağ, A. Villringer, “Noninvasive cerebral blood flow monitoring by a dye bolus method: separation of extra- and intracerebral absorption changes by frequency domain spectroscopy”, *Proceedings of SPIE* **4250**, 296-300 (2001).

Awards

- October 2008 Teaching award at the Graduate School of Neural and Behavioral Sciences
- November 2003: Price of the German Society of Neurology for the Poster “Kortikale neuro-vaskuläre Kopplung – nicht-invasiv erfasst mittels Magnetoencephalographie und Nahinfrarot-Spektroskopie”
- September 1997: Hereaus-Award for outstanding Diploma thesis

Professional and Scientific Societies

- 2003-present International Society of Magnetic Resonance in Medicine
- 2004-present Organization for Human Brain Mapping
- 2004-present Society for Neuroscience
- 2008-present European Society for Magnetic Resonance in Medicine and Biology