KAMIL UGURBIL

CURRICULUM VITAE

Center for Magnetic Resonance Research
University of Minnesota Medical School
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Education

1971	A.B.	Columbia College, Columbia University (Physics)
1974	M.A.	Columbia University (Chemical Physics)
1976	M. Phil.	Columbia University (Chemical Physics)
1977	Ph.D.	Columbia University (Chemical Physics)

Academic Appointments

2003 - Present	Chair Professor	McKnight Presidential Endowed Chair Professor, University of Minnesota
1991 - Present	Founding Director	Center for Magnetic Resonance Research (CMRR), University of Minnesota
2003 - 2008	Director	Max Planck Institut für Biologische Kybernetik, Hochfeld Magnetresonanz Zentrum, Tübingen, Germany
1996 - 2003	Chair Professor	Margaret & H.O. Peterson Chair of Neuroradiology, University of Minnesota
1985 - present	Professor	Departments of Radiology, Neurosciences, and Medicine, University of Minnesota
1982 - 1985	Associate Professor	Dept. of Biochemistry, University of Minnesota
1979 - 1982	Assistant Professor	Biochemistry Department, Columbia University
1977 - 1979	Postdoctoral Fellow	Bell Laboratories

Honors and Awards

2019 **IEEE Medal for Innovations in Healthcare Technology** (IEEE=Institute of Electrical and Electronics Engineers)
2019 Elected into **The Science Academy, Turkey**
2018 **Haughton Award, ASFNR** (American Society of Functional Neuroradiology)
2016 **Vehbi Koç Award**
2015 **Distinguished Fellow**, **SAGE Center for the Study of the Mind**
2014 **Richard Ernst Lecture and Gold Medal** (ETH, Zürich)
2014 Elected into **National Academy of Inventors, USA**
2013 Appointed to the fifteen-member **BRAIN Initiative (USA) Working group**
2013 **Erwin Hahn Lecture**, Erwin Hahn Institute, Essen, Germany
2013 Elected into the **Academy of Device Innovators**, University of Minnesota
2011 **Honorary Doctorate** (Doctorate Honoris Causa), University of Maastricht, Netherlands
2010 **Human Connectome Project** Award from NIH, Co-Principle Investigator
2010 **Centennial Lecture**, University of Florida, Gainesville
2010 **5th Annual Glen D. Dobben Memorial Lecture**, University of Illinois, Chicago
2009 **Sir Peter Mansfield Lecture** ESMRMB (European Society of Magnetic Resonance in Medicine and Biology)
2009 Elected **Fellow of the International Society of Magnetic Resonance** (ISMAR). (2009 is the first year ISMAR established ISMAR Fellowship)
2007 Elected into the **National Academy of Medicine, USA**

2005 Elected into the **American Academy of Arts and Sciences**
2005 **Honorary Doctorate** (Doctorate Honoris Causa), University of Utrecht, Netherlands
2004 **Segerfalk Award Lecturer**, University of Lund, Sweden
2003 **McKnight Presidential** Endowed Chair Professorship, University of Minnesota
2001 **Science Day Lecturer**, Swiss Federal Institute of Technology (EPFL), Lausanne
1996 **Margaret & H.O. Peterson Chair** Professorship, University of Minnesota
1997 Inducted as **Fellow, International Society of Magnetic Resonance in Medicine (ISMRM)**
1996 **Gold Medal** from the International Society of Magnetic Resonance in Medicine
1993 **Werner-Gren Distinguished Lecturer**, Karolinska Institute, Stockholm
1983 **NIH Research Career Development Award**
1980 **Irma T. Hirschl Career Scientist** Award
1976 Recipient of **Hammett Award** for **Original and Distinguished Research**
1974 **Columbia University, Graduate Faculties Alumni Scholar**

MEMBERSHIP in NATIONAL ACADEMIES

1. **National Academy of Medicine, USA**
2. **American Academy of Arts and Sciences**
3. **National Academy of Inventors, USA**

Appointments on Advisory and Editorial Boards

2017 - Scientific Advisory Board of Neurospin, INSERM-CEA-University Paris Saclay
2014 - Advisory Editor, *Neural Computation* Journal
2013 - 2014 "BRAIN" Initiative Working Group
2012 - 2017 National Institute of Mental Health (NIMH), Board of Scientific Advisors
2006 - 2016 European Research Council (ERC), Life Science Panel
2000 - 2013 Stanford University MR Center, Palo Alto, California; Advisory Board
2001 - 2006 Journal of Neurophysiology; Editorial Board
1987 - 2003 NMR in Biomedicine; Journal Editorial Board
1997 - 2003 Medical College of Wisconsin, MR Center; Advisory Board
1997 - 2002 Max Planck Institute, Leipzig, Germany; Program Review Board (Fachbeirat)
1997 - 2000 Scientific Program Committee International Society of Magnetic Resonance Imaging
1996 - 1999 Journal of Magnetic Resonance (JMR); Associate Editor
1989 - 1994 Biochemical Journal; Journal Editorial Board
1988 - 1994 National Magnet Lab, Massachusetts Institute of Technology; Advisory Board
1988 - 1991 Trustee of the Society of Magnetic Resonance in Medicine
1987 - 1989 Center for Nuclear Imaging Research (CNIR), University of Alabama; Advisory Board

Research Interests

My central research interest is the development and application of ultrahigh field magnetic resonance (MR) methods for neuroimaging, particularly for imaging of brain activity (functional imaging (fMRI)), and combining these methodological and instrumentation developments with neuroscience applications in the human and animal brain to advance our understanding of brain function in health and disease.

My research brings together physics and instrumentation with physiology and neurochemistry to assess cerebral function and underlying structure, physiology and neurochemistry. fMRI was first achieved simultaneously by two independent teams; one was carried out in the laboratory that I lead, the Center

for Magnetic Resonance Research (CMRR) at the University of Minnesota, by the team led by me and my colleague Seiji Ogawa from Bell laboratories. This development has been followed by a large body of seminal work from my laboratory on the mechanisms of coupling between magnetic resonance detected signals and neuronal activity.

An integral part of my research effort includes development of instrumentation and image acquisition methods for ultrahigh field (≥7 Tesla) imaging in humans, particularly (but not only) for pushing the boundaries of mapping brain function and connectivity. The development of ultrahigh fields for MRI was pioneered in my group in the context of this aim. The combined effort in untangling the mechanisms operative in fMRI signals and parallel technological and methodological advances for ultrahigh magnetic fields have produced some of the most advanced application of neuroimaging in general and functional brain imaging in particular, and are increasingly used world-wide. This effort also led to the development of instrumentation capable of human imaging above 10 Tesla for the first time- e.g. see https://www.nature.com/articles/d41586-018-07182-7?utm_source=twt_na&utm_medium=social&utm_campaign=NGMTnature.

Recently, these advances has been extended to mapping the macro-connectome of the human brain under the auspices of the Human Brain Connectome project launched by the NIH Neuroscience Blueprint initiative, and continued through Human Connectome Project Lifespan project.

Unique Research Funding Awards:

- Principal Investigator of two NIH BRAIN Initiative Awards
- Co-Principal investigator leading the Washington University-University of Minnesota consortium that was awarded the Human Connectome Project, an NIH Neuroscience Blueprint initiative, which aims to map the human brain macro-connectome (http://humanconnectome.org/).
- Principal investigator of two Biotechnology Research Center (BTRC) grant from the National Center for Research Resources and subsequently National Institute of Biomedical Imaging and Bioengineering (NIBIB), NIH; one of these grants supported, uninterrupted between 1993-2018, ultrahigh field MR methodology development with particular emphasis on neuroimaging and functional brain imaging. It was subsequently replaced with a new BTRC grant from NIBIB focusing on both ultrahigh field MR and optical methods (http://www.cmrr.umn.edu/research/)
- Principal Investigator of one of four NIH Neuroscience Blueprint grants awarded to establish Neuroscience Center Cores.

Research Impact Statistics

h-factor: 110 (Web of Science, 2019)

Sum of Times Cited *without* self-citations: 38,780 (web of Science, 2019)

Citing articles *without* self-citations: 24,488 (web of Science, 2019)

(See details at the end of the CV)

Societies

National Academy of Medicine
American Academy of Arts and Sciences
National Academy of Inventors

SELECTED CONTRIBUTIONS TO SCIENCE

1. Discovery of Functional Magnetic Resonance Imaging (fMRI). The introduction of fMRI was accomplished in two laboratories independently and simultaneously in 1991-1992, one of which was Ugurbil's at the University of Minnesota. Using manipulations of the physiologic state of the anesthetized animal, such as altering oxygen content of inhaled gas, S. Ogawa from Bell Laboratories described in 1990 the effect of deoxyhemoglobin on MR images of the brain, and named it Blood Oxygenation Dependent (BOLD) contrast. The use of this contrast mechanism for functional mapping of human brain activity was achieved in Ugurbil's laboratory in collaboration with Ogawa. This landmark effort was also accompanied by the first modeling and experimental papers aimed at elucidating the mechanism underlying the functional imaging signals.

- Ogawa S, Tank DW, Menon R, Ellermann JM, Kim SG, Merkle H, **Ugurbil K.** (1992). "Intrinsic signal changes accompanying sensory stimulation: functional brain mapping with magnetic resonance imaging." Proc Natl Acad Sci U S A 89(13): 5951-5955. PMCID: PMC402116.
- Ogawa S, Menon RS, Tank DW, Kim SG, Merkle H, Ellermann JM, **Ugurbil K.** (1993). "Functional brain mapping by blood oxygenation level-dependent contrast magnetic resonance imaging. A comparison of signal characteristics with a biophysical model." Biophys J 64(3): 803-812. PMCID: PMC1262394.
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2. Development of high and ultrahigh magnetic fields for magnetic resonance imaging and spectroscopy. Motivated primarily by the understanding of the mechanisms underlying functional mapping signals in fMRI and the role played by the static magnetic field strength, a common thread in Ugurbil's work has been the effort to exploit very high magnetic fields for human studies in order to enhance the biological information content, accuracy, and resolution of imaging and spectroscopy signals. Ugurbil laboratory was one of the first three academic laboratories that initiated 4 Tesla (T) human imaging at approximately the same time in ~1990; subsequently, justified by a large body of 4T human data and small animal experiments conducted at 9.4T, Ugurbil and colleagues were the first to introduce 7 Tesla for studies of human brain function in ~1999, using a 7T magnet developed specifically the first time for this effort and with system development and integration undertaken by Ugurbil and colleagues. This seminal effort in ultrahigh magnetic fields was complemented with fundamental studies on the physics of high field/high frequency imaging in the human body, development of high frequency RF methods and instrumentation (such as parallel transmit concepts and hardware), and introduction of new data acquisition methods, to attain some of the most advanced neuroimaging capabilities. The data coming from this 7T system ultimately led to commercially produced 7T systems and to the evolution of such high fields as the most advanced neuroimaging and more recently body imaging platform.

- **Ugurbil K**, Garwood M, Ellermann J, Hendrich K, Hinke R, Hu X, Kim SG, Menon R, Merkle H, Ogawa S, Salmi R. (1993). "Imaging at high magnetic fields: initial experiences at 4 T". Magn Reson Q 9, 259-277.
- Vaughan JT, Garwood M, Collins CM, Liu W, DelaBarre L, Adriany G, Andersen P, Merkle H, Goebel R, Smith MB, **Ugurbil K**. (2001). "7T vs. 4T: RF power, homogeneity, and signal-to-noise comparison in head images." Magn Reson Med 46, 24-30.
- Adriany G, Van de Moortele PF, Wiesinger F, Moeller S, Strupp JP, Andersen P, Snyder C, Zhang X, Chen W, Pruessmann KP, Boesiger P, Vaughan T, **Ugurbil K**. (2005). "Transmit and receive transmission line arrays for 7 Tesla parallel imaging." Magn Reson Med 53, 434-445.
- Van de Moortele PF, Akgun C, Adriany G, Moeller S, Ritter J, Collins CM, Smith MB, Vaughan JT, **Ugurbil K**. (2005). "B(1) destructive interferences and spatial phase patterns at 7T with a head transceiver array coil." Magn Reson Med 54, 1503-1518.
- **Ugurbil K.** (2012). "The road to functional imaging and ultrahigh fields". Neuroimage;62(2):726-735.

- **Ugurbil K**. (2014). "Magnetic resonance imaging at ultrahigh fields". IEEE Trans Biomed Eng;61(5):1364-1379.
- **Ugurbil, K**., 2017. Imaging at ultrahigh magnetic fields: History, challenges, and solutions. Neuroimage DOI: 10.1016/j.neuroimage.2017.07.007.

3. Understanding mechanisms underlying functional mapping signals in fMRI; towards developing high resolution and high accuracy maps of neuronal activity. The ability to obtain functional maps at the level of minimal architectural units that organize neural populations of similar properties is critical for understanding brain function. The cortical columns of neocortex are prominent examples of such structurally and functionally specialized units and have received extensive attention in studies of brain function using electrophysiology, optical imaging, and computational modeling. In addition, the differences in connectivity and cell types across the few millimeter thick cortical ribbon imply that laminar resolution is also critical in deciphering the elementary computations of the brain. However, because fMRI signals reflect neuronal activity indirectly through neurovascular coupling and vasculature, it is not possible to assume *a priori* that functional mapping signals in fMRI have high fidelity to sites of neuronal activity. Subsequent to the introduction of fMRI, Ugurbil's group made seminal and pioneering contributions towards understanding the mechanisms underlying fMRI signals, the spatial scale of neurovascular coupling, and the nature of mapping signal with different functional contrast encoding approaches; this knowledge was then exploited to develop methods (including ultrahigh field MR technology (see below)) for functional mapping at the level of cortical columns and layers in the human brain.

- Duong TQ, Kim DS, **Ugurbil K,** Kim SG. (2001). "Localized cerebral blood flow response at submillimeter columnar resolution." Proc Natl Acad Sci U S A 98, 10904-10909. PMCID: PMC58572.
- Shmuel A, Yacoub E, Pfeuffer J, Van de Moortele PF, Adriany G, Hu X, **Ugurbil K.** (2002). "Sustained negative BOLD, blood flow and oxygen consumption response and its coupling to the positive response in the human brain." Neuron 36, 1195-1210.
- Shmuel A, Yacoub E, Chaimow D, Logothetis NK, **Ugurbil K.** (2007). "Spatio-temporal point-spread function of fMRI signal in human gray matter at 7 Tesla." Neuroimage 35, 539-552. PMCID: PMC2989431.
- Yacoub E, Harel N, **Ugurbil K. (**2008). "High-field fMRI unveils orientation columns in humans." Proc Natl Acad Sci U S A 105, 10607-10612. PMCID: PMC2492463.
- Uludag K, Muller-Bierl B, and **Ugurbil K.** (2009). "An Integrative Model for Neuronal Activity-Induced Signal Changes for Gradient and Spin Echo Functional Imaging." Neuroimage, 2009. 48(1): p. 150-65.

4. The Human Connectome Project. The Human Connectome Project (HCP) was a major undertaking funded by the sixteen institutes and centers of the National Institutes of Health (NIH) that support the NIH Blueprint for Neuroscience Research. HCP aims to map connections in of the human brain in the mm scale in normal adults in their mid-life. This project was awarded to a consortium led by the Washington University and the University of Minnesota, Center for Magnetic Resonance Research (CMRR) (grant number 1U54MH091657) with David Van Essen from Washington University in St. Louis and Ugurbil serving as co-PIs. Ugurbi's group was responsible for all the technical developments for image acquisition and reconstructions methods. Starting from developments already in progress in Ugurbil group, major advances for image acquisition were accopmlished leading to the highest temporal and spatial resolution fMRI and diffusion weighted (dMRI) images of the human brain. These imaging approaches have redefined functional and diffusion weighted imaging. Tom Insel, the head of the NIMH, cited the HCP accomplishments as a major advance in brain sciences (http://www.nimh.nih.gov/about/director/2015/brain-awareness.shtml).

- **Ugurbil K**, Xu J, Auerbach EJ, Moeller S, Vu AT, Duarte-Carvajalino, et al. (2013). "Pushing spatial and temporal resolution for functional and diffusion MRI in the Human Connectome Project." Neuroimage 80, 80-104.

- Van Essen DC, Smith SM, Barch DM, Behrens TE, Yacoub E, **Ugurbil K**, WU-Minn HCP Consortium. (2013). "The WU-Minn Human Connectome Project: An overview." Neuroimage 80, 62-79.
- Smith SM, Miller KL, Moeller S, Xu J, Auerbach EJ, Woolrich MW, Beckmann CF, Jenkinson M, Andersson J, Glasser MF, Van Essen DC, Feinberg DA, Yacoub ES, **Ugurbil K**. (2012). "Temporally-independent functional modes of spontaneous brain activity." Proc Natl Acad Sci U S A 109, 3131-3136.
- Xu J, Moeller S, Auerbach EJ, Strupp J, Smith SM, Feinberg DA, Yacoub E, **Ugurbil K**. 2013. "Evaluation of slice accelerations using multiband echo planar imaging at 3 T." Neuroimage 83, 991-1001.
- Vu AT, Auerbach E, Lenglet C, Moeller S, Sotiropoulos SN, Jbabdi S, Andersson J, Yacoub E, **Ugurbil K**. "High resolution whole brain diffusion imaging at 7T for the Human Connectome Project". Neuroimage 2015;122:318-331.

5. In vivo magnetic resonance spectroscopy and applications to studies in the human brain. One of the first pioneering efforts towards using magnetic resonance to extract biochemical and physiologic information non-invasively in intact biological systems was started in Bell Laboratories Biophysics group where Ugurbil worked after his PhD. In this small group, Ugurbil and colleagues introduced and demonstrated the use of magnetic resonance spectroscopy in intact biological systems. Many years later many of these techniques were used to study bioenergetics of neuronal function in the human brain at ultrahigh magnetic fields in Ugurbil's laboratory in the University of Minnesota. Some publications that exemplify this effort are listed below.

- **Ugurbil K**, Brown TR, den Hollander JA, Glynn P, Shulman RG. (1978). "High-resolution 13C nuclear magnetic resonance studies of glucose metabolism in Escherichia coli." Proc Natl Acad Sci U S A 75, 3742-3746.
- Brown TR, Kincaid BM, **Ugurbil K**. (1982). "NMR chemical shift imaging in three dimensions." Proc Natl Acad Sci U S A 79, 3523-3526.
- **Ugurbil K**, Rottenberg H, Glynn P, and Shulman R G. (1982). "Phosphorus-31 nuclear magnetic resonance studies of bioenergetics in wild-type and adenosinetriphosphatase(1-) Escherichia coli cells." Biochemistry **21**(5): 1068-1075.
- Gruetter R, Weisdorf SA, Rajanayagan V, Terpstra M, Merkle H, Truwit CL, Garwood M, Nyberg SL, **Ugurbil K.** (1998). "Resolution improvements in in vivo 1H NMR spectra with increased magnetic field strength". J Magn Reson;135(1):260-264.
- Chen W, Zhu XH, Gruetter R, Seaquist ER, Adriany G, **Ugurbil K**. (2001). "Study of tricarboxylic acid cycle flux changes in human visual cortex during hemifield visual stimulation using (1)H-{(13)C} MRS and fMRI." Magn Reson Med 45, 349-355.
- Mangia S, Tkac I, Gruetter R, Van de Moortele PF, Maraviglia B, **Ugurbil K**. (2007). "Sustained neuronal activation raises oxidative metabolism to a new steady-state level: evidence from 1H NMR spectroscopy in the human visual cortex." J Cereb Blood Flow Metab 27, 1055-1063.

6. Design of novel RF pulses, and MR acquisition sequences. Development of new methods for MR image or spectra acquisitions and radio-frequency (RF) pulse design, and improvements of such methods has been an integral part of Ugurbil's work from the very beginning of his career. Some of the most commonly used methods in the biomedical applications of MR were introduced by Ugurbil and his colleagues and include, for example, chemical shift imaging for spectroscopy; adiabatic "plane-rotation" RF pulses, their optimization, and their use in spatial-spectroscopic encoding; parallel transmit methods for RF pulse design for improved RF homogenity and power deposition constraint; high contrast anatomical imaging at high magnetic fields; and most notably for recent efforts to study the human brain, the introduction of slice accelerated multiband (MB), simultaneous multislice (SMS) imaging for fMRI and diffusion imaging (for tractography), which has transformed the way studies of human brain connectivity and function is currently performed. Few examples of publications that cover these efforts include:

- Brown TR, Kincaid BM, **Ugurbil K.** (1982). "NMR chemical shift imaging in three dimensions". Proc Natl Acad Sci U S A;79(11):3523-3526.
- **Ugurbil K,** Garwood M, Rath A, Bendall MR. (1988). "Amplitude and Frequency/Phase Modulated Refocusing Pulses that Induce Plane Rotations Even in the Presence of Inhomogeneous Fields". J Magn Reson;78:472-497.
- Merkle H, Wei H, Garwood M, **Ugurbil K.** (1992). "B1-Insenstive Heteronuclear Adiabatic Polarization Transfer for Signal Enhancement". J of Magn Reson;99:480-494.
- Lee JH, Garwood M, Menon R, Adriany G, Andersen P, Truwit CL, **Ugurbil K.** (1995). "High contrast and fast three-dimensional magnetic resonance imaging at high fields". Magn Reson Med;34(3):308-312.
- Moeller S, Yacoub E, Olman CA, Auerbach E, Strupp J, Harel N, **Ugurbil K**. (2010). "Multiband multislice GE-EPI at 7 tesla, with 16-fold acceleration using partial parallel imaging with application to high spatial and temporal whole-brain fMRI". Magn Reson Med;63(5):1144-1153.
- Auerbach EJ, Xu J, Yacoub E, Moeller S, **Ugurbil K.** (2013). "Multiband accelerated spin-echo echo planar imaging with reduced peak RF power using time-shifted RF pulses". Magn Reson Med;69(5):1261-1267.
- Wu X, Schmitter S, Auerbach EJ, Moeller S, **Ugurbil K,** Van de Moortele PF. (2013). "Simultaneous multislice multiband parallel radiofrequency excitation with independent slice-specific transmit B1 homogenization". Magn Reson Med;70(3):630-638.

INVITED LECTURES (This list contains invitation up to and including October 2006. Lectures given in 2006-2009 were *not* tracked. A separate list is provided for invited Lectures in 2009 and later)

1. Third Annual Conference on Molecular Structural Methods in Biological Research, Stanford, CA, 1977.
2. Gordon Conference on Biopolymers, Plymouth, NH, 1978.
3. American Physical Society, New York, NY, March 1980.
4. Xth International Conference on Magnetic Resonance in Biological Systems, Stanford, CA, September 1982.
5. Winter meeting of the Norwegian Biochemical Society, January 1984.
6. 1984 Pacific Slope Biochemical Conference, University of California, Santa Cruz, CA, July 1984.
7. Third Annual Scientific Meeting of the Society of Magnetic Resonance in Medicine, New York, NY, August 1984.
8. XI International Conference on Magnetic Resonance in Biological Systems, Goa, India, September 1984.
9. Conference on Cardiovascular Imaging, Bethesda, MD, September 16-18, 1984.
10. Conference on NMR of Living Systems, Stockholm Sweden, December 1984.
11. 5th Annual Scientific Meeting at the Society of Magnetic Resonance in Medicine, Montreal, Canada, August 1986.
12. Conference on *in vivo* NMR Spectroscopy, New York Academy of Sciences, New York, NY, September 1986.
13. Annual Meeting of the American College of Cardiology, March 1987.
14. American Chemical Society Meeting, Chicago, IL, June 1987.
15. Southern Regional NMR Conference, September 1987.
16. Annual Meeting of the American College of Cardiology, March 1988.
17. Annual Meeting Federation of American Societies for Experimental Biology (FASEB), May 1988.

18. US-Italy Cardiovascular Conference, June 1988.
19. Conference on Emerging Technologies for Simultaneous Spatial and Spectral Resolution in *in vivo* NMR, June 1988.
20. Gordon Conference on NMR in Biology and Medicine, 1988.
21. XIII International Conference on Magnetic Resonance in Biological Systems, August 1988.
22. Soc. of Magnetic Resonance in Medicine, Annual Conference, August 1988.
23. International Conference on Magnetic Resonance Spectroscopy and Imaging, Winnipeg, Manitoba, February 1989.
24. AICHE Conference, St. Paul, MN, February 1989.
25. *In Vivo* Magnetic Resonance Workshop, San Francisco, CA, March 1989.
26. Energy and Myocardial Ionic Homeostasis, Baltimore, MD, May 1989.
27. Annual Meeting of the Association of University Radiologists, Seattle, WA, May 1989.
28. Society of Nuclear Medicine Annual Meeting, St. Louis, MI, June 1989.
29. Topical Workshop on Localized NMR Spectroscopy, Max-Plank Institut, Gottingen, FRG, June 1989.
30. American Heart Association Meeting, Santa Fe, NM, July 1989.
31. Physiological Society, Annual Meeting, October 1989.
32. American Chemical Society, Miami, FL, September 1989.
33. Japan NMR meeting, Tokyo, Japan, November 1989.
34. American Chemical Society, Pacific Basin Meeting. Workshop on NMR spectroscopy, Honolulu, HI, December 1989.
35. National Institutes of Health Workshop on Sudden Cardiac Death, September 1990.
36. Society of Magnetic Resonance Imaging, Annual Meeting, Feb. 1990.
37. Workshop on *in vivo* Magnetic Resonance Spectroscopy, San Francisco, CA, March 1990.
38. Workshop on Special Topics in Medical Magnetic Resonance, Whistler, British Columbia, July 1990.
39. Workshop on *in vivo* Magnetic Resonance Spectroscopy, St. Louis, MO, March 1991.
40. Annual Meeting of the International Society for Heart Research, Cincinnati, OH, June 1991.
41. Seeing into Materials; Imaging Complex Structures, Princeton, N.J., May 6-8, 1991.
42. Annual Meeting of the Society of Magnetic Resonance in Medicine, teaching program, San Francisco, CA, August 1992.
43. Southwestern Regional NMR Meeting, Santa Fe, NM, June 1991.
44. Society of Magnetic Resonance in Medicine, 1991 Annual meeting teaching session
45. Living NMR, Bijvoet Symposium, Utrecht, Netherlands, September 1991.
46. NMR in Biology and Medicine, Madrid, Spain, November 1991.
47. Workshop on Cardiovascular NMR , Atlanta, GA, December 1991.
48. In Vivo Spectroscopy Workshop, San Francisco CA, March 1992.
49. ENC Conference, Assilomar, CA, March 30 - April, 1992.
50. Second International Sokolov Conference on Magnetic Resonance Spectroscopy and Imaging, Winnipeg, Manitoba, May 8 - 9, 1992.
51. Princeton Conference, Detroit, MI, May 29 - 30, 1992.
52. High Field Imaging and Spectroscopy, Bethesda MD, June 1992.
53. Society of Magnetic Resonance in Medicine, 1992 annual Conference, Educational Program, Berlin, Germany, August 1992.
54. XV International Conference on Magnetic Resonance in Biological Systems, Jerusalem, Israel August 1992.

55. Conference on Energy Production in Hypertrophied Hearts, Beaune, France, September 9 - 11, 1992.
56. World Conference on Superconductivity, Munich, Germany, September 16 - 18, 1992.
57. Cardiovascular Science and Technology Conference, Bethesda, MD, December 12- 14, 1992.
58. XII Annula Meeting of GERM, (Groupe d'Etude en Resonance Magnetique), Gien, Toulon, France, Mach 28 - April 2, 1993.
59. Annual Meeting of the American Society of Neuroradiology, Vancouver, May 13-20, 1993.
60. 40th Annual Meeting of the Society of Nuclear Medicine, Categorical Seminar Course, Toronto, Canada, June 7, 1993.
61. Workshop on Functional Imaging, June 17-20, 1993.
62. Science Innovation' 93, Boston, MA, August 6-10, 1993.
63. Society of Magnetic Resonance in Medicine, 1993 annual Conference, Educational Program, New York, NY, August 1993.
64. 2nd International Conference on Magnetic Resonance Microscopy (The Heidelberg Conference), Heidelberg, Germany, September 6-9, 1993.
65. Conference on Brain Plasticity. Dana Point, CA, October 27-29, 1993.
66. 1st Midwest Course on Functional Magnetic Resonance Imaging Milwaukee, WI, November 6, 1993.
67. 9th TMIN Symposium, "New Horizon's in Neuropsychology", Tokyo, Japan, November 24 - 25, 1993.
68. Annual Meeting of the American Association for the Advancement of Science, San Francisco, CA, February 18 - 23, 1994.
69. 38th Annual Meeting of the Biophysical Society, New Orleans, LA, March 6 - 10, 1994.
70. 19th Princeton Conference, Boston, MA, March 18-20, 1994.
71. Functional MRI Workshop, Amsterdam, The Netherlands, April 13 - 14, 1994.
72. 42nd Meeting of the AUR, Boston, MA, May 3 - 8, 1994.
73. 77th Canadian Society for Chemistry- Conference and Exhibition "Biomedical NMR Spectroscopy", Winnipeg, Canada, May 29 - June 2, 1994.
74. XIX CINP Congress, "Symposium on Neuroimaging in Children and Adolescents", Washington, D.C., June 27 - July 1, 1994.
75. Symposium "Neuroscience 1994 Finland", Kuopio, Finland, June 17 - 18, 1994.
76. Society of Magnetic Resonance, 1994 annual Conference, Educational Program, San Francisco, CA, August 6-12, 1994.
77. Society of Magnetic Resonance, 1994 annual Conference, Main Program (Plenary Talk), San Francisco, CA, August 6-12, 1994.
78. XVIth International Conference on Magnetic Resonance in Biological Systems. Amsterdam, August 14-19, 1994.
79. Workshop on Magnetic Resonance Techniques and Epilepsy Research, October 6-8, 1994.
80. The Use of Functional MRI for Studies of Brain Development and Developmental Psychopathology, MacArthur Foundation Chicago, IL, November 1994.
81. Salk Institute McDonnel-Pew Center for Cognitive Neuroscience, Planning meeting for fMRI, October 26, 1995.
82. Functional Magnetic Resonance Imaging Workshop, University of Wisconsin, Madison, WI, November 5, 1994.
83. European Congress of Radiology, Vienna, Austria, March 5-9, 1995.
84. Advances in Physiological Chemistry by In Vivo NMR, Woods Hole, Massachusetts, March 22-24, 1995.

85. 82nd Annual Assembly of the Swiss Society of Medical Radiology- 100th year of Rontgen Celebrations. Zurich, Switzerland, August 13 – 18, 1995.
86. International Society for Magnetic Resonance (ISMAR)- 1995 Annual Meeting. Sydney, Australia, July 16 - 22, 1995.
87. Federation of European Biological Societies (FASEB), Annual Meeting, Basel, Switzerland, August 24 -29, 1995.
88. Radiological Society of North America, Chicago, IL, November 30, 1995.
89. XIth Conference The Bio-clinical Interface "Recent Advances in Psychiatry" Rouffach, France, September 20 -22, 1995.
90. 4th Annual Bristol-Myers Squibb Symposium on Cardiovascular Research "Animal Models of Cardiac Dysfunction", Minneapolis, MN, September 28 - 29, 1995.
91. 10th International Tokyo Institute of Psychiatry Symposium "Visualization of Information Processing in the Human Brain" Recent Advances in MEG and Functional MRI" Tokyo, Japan, October 12 - 133, 1995.
92. The American Physical Society, Fall meeting of the Division of Nuclear Physics, Bloomington, IN, October 25 -28, 1995.
93. 3rd Conference on the Application of Magnetic Resonance to the Cardiovascular System, sponsored by the American Heart Association San Francisco, CA, January 13 - 17, 1996.
94. Fourth Scientific Meeting and Exhibition of the International Society of Magnetic Resonance in Medicine, April 27 - May 3, 1996.
95. XIIth International Biophysics Congress, Amsterdam, The Netherlands, August 11 -16, 1996.
96. XVIIth International Conference on Magnetic Resonance in Biological Systems, Keystone, CO, August 18 -23, 1996.
97. 22nd European Congress of Neuroradiology and VI Advanced Course, Milan, Italy ,September 17-21, 1996.
98. Garmisch Meeting, Garmisch, Germany, January 22 - 26, 1997.
99. Minnesota Highfield Workshops, University of Minnesota, March 7 -10, 1997.
100. 7th Chianti Workshop on Magnetic Resonance, San Miniato, Italy, May 25 -31, 1997.
101. 24th Congress, Scandinavian Society of Anesthiologists, Stockholm, Sweden, June 10-13, 1997.
102. IMA Workshop - Statistics in the Health Science, University of Minnesota, July 14-18, 1997.
103. Analysis of Neural Data, Marine Biological Labs, Woods Hole, MA, August 18-22, 1997.
104. XII Biological Psychiatry Meeting, Rouffach, France, September 24-26, 1997.
105. Perfusion Imaging Workshop, Bethesda, MD, October 20, 1997.
106. Digital Summit, Minneapolis, MN, October 22, 1997.
107. ISMRM Fast MRI Workshop: Methodological Perspectives and Advances in Cardiac, Neuro, Angiography and Abdominal Imaging, Asilomar Conference Center, Monterey, CA, October 27-29, 1997.
108. High Field NMR: A New Millennium Resource, Washington, DC, January 15-16, 1998.
109. The 4th AHA, 1st SCMR Conference on MR of the Cardiovascular System, Atlanta, GA, January 30-February 1, 1998.
110. Massachusetts General Hospital MRI Conference, Kauai, Hawaii, February 16-21, 1998.
111. Bioengineering Research: Building the Future of Biology and Medicine, Washington, DC, February 27-28, 1998.
112. McDonnell Foundation Workshop: Cerebral Metabolism and Human Cognition: New Approaches to Functional Neuroenergetics, St. Louis, MO, May 20-21, 1998.
113. Conference: Functional Mapping of the Human Brain, Montreal, Canada, June 8 - 10, 1998.
114. Enrico Fermi School of Physics in Lake Como; Magnetic Resonance Investigation of the Brain

Milan, Italy, June 28 - June 3, 1998.

115. 29th AMPERE –13th ISMAR Joint Conference on Related Phenomena; Berlin, Germany, August 2-7, 1998.
116. First International Conference on Functional Brain Imaging in Neurology and Psychiatry; Athens, Greece, September 12-15, 1998.
117. Mayo Clinic and University of Minnesota Joint Symposium on Neuroscience, Rochester, MN, March 5, 1999.
118. MCP Hahnemann University Research Day, Drexel University, Philadelphia, PA, May 5-6, 1999.
119. International Society for Magnetic Resonance In Medicine, Philadelphia, PA, May 23-28, 1999.
120. 5th International Conference on Functional Mapping of the Human Brain, Dusseldorf, Germany, June 23-26, 1999.
121. Workshop Spectroscopy, Microscopy & fMRI Applications, Vienna, Austria, July 2-4, 1999.
122. Brain Imaging Symposium-IBRO Jerusalem, Israel, July 11-15, 1999.
123. Lauterbur Symposium, Chicago, IL, September 17-18, 1999.
124. NCI Imaging 2020 Conference Caltech, September 26-30, 1999.
125. Cognitive Neuroscience, Institute of Neurology, Welcome Department of Cognitive Neurology, London, February 15-18, 2000.
126. International Society for Magnetic Resonance In Medicine, Denver, CO, April 2-7, 2000.
127. Experimental NMR Conference (ENC) Asilomar, CA, April 10-13, 2000.
128. Biomedical Information Engineering Workshop Istanbul, Turkey, June 24-28, 2000.
129. Satellite Meeting on Diagnostic NMR, Siena, Italy, August 15-19, 2000.
130. XIX International Conference on Magnetic Resonance in Biological Systems, Florence, Italy, August 20-25, 2000.
131. Autumn School in Cognitive Neuroscience, Oxford, England, September 26-29, 2000.
132. HFSP 11th Workshop: New Approaches and Emerging Concepts in Functional Neuroenergetics, Strasbourg, Germany, October 10-12, 2000.
133. Workshop on “Understanding the BOLD Phenomena and its Applications”, Chapel Hill, NC, October 26-28, 2000.
134. International Society of Magnetic Resonance in Medicine, Glasgow, Scotland, April 21-27, 2001.
135. 9th Chianti Workshop, San Miniato, Italy, May 26-June 1, 2001.
136. Organization of Human Brain Mapping, Brighton, England, June 9-14, 2001.
137. Magnet Technology Conference, Geneva, Switzerland, September 24-28, 2001.
138. GDCh Jahrestagung Chemie 2001, Wursburg, Germany, September 25-27, 2001.
139. NIMH/NIH Workshop, Laguna Beach, CA, January 9-11, 2002.
140. 43rd ENC Meeting, Asilomar, CA, April 14-19, 2002.
141. Athens Brain Conference, Athens, Greece, May 8-12, 2002.
142. McGovern Institute Symposium, MIT, Boston, MA, May 13-14, 2002.
143. International Society for Magnetic Resonance in Medicine, Honolulu, HI, May 18-24, 2002.
144. 16th European Experimental NMR Conference, Prague, Czech Republic, June 9-14, 2002.
145. Office of National Drug Control Policy Demand Reduction Technology Symposium, Cambridge, MA, July 8-10, 2002.
146. European Society for Magnetic Resonance in Medicine and Biology 2002, Cannes, France, August 22-25, 2002.
147. Gordon Research Conference, New London, NY, July 28-August 2, 2002.
148. Brainstorm 2002: The Future of Neuroimaging, Athens, Greece, September 19-21, 2002.
149. International Symposium on Highfield MRI in Clinical Applications, Bonn, Germany, October 11-12, 2002.

150. Institute of Electrical and Electronics Engineers-Engineering in Medicine and Biology Meeting, Houston, TX, October 23-26, 2002.
151. Inaugural Functional Neuroimaging Symposium, Birmingham, AL, November 8-9, 2002.
152. First Eastern Mediterranean Congress of Magnetic Resonance Imaging & Second National Congress of Magnetic Resonance Imaging, Izmir, Turkey, December 12-14, 2002.
153. Institute of Electrical and Electronics Engineers-Engineering in Medicine and Biology Conference, Capri, Italy, March 20-22, 2003.
154. 44th Experimental Nuclear Magnetic Resonance Conference, Savannah, GA, March 30-April 4, 2003.
155. 9th International Congress on Schizophrenia Research, Colorado Springs, CO, April 1-2, 2003.
156. New NMR Strategies for Brain, Erice, Sicily, April 4-10, 200.3
157. University of Florida, Gainesville, FL, April 21-22, 2003.
158. Dartmouth, Hanover, NH, May 18-20, 2003.
159. Japan - Seiji Ogawa Symposium, May 20-25, 2003.
160. Symposium in Honor of Robert Shulman, New Haven, CT, June 17, 2003.
161. VISN Meeting, San Antonio, TX, July 11, 2003.
162. International Society for Magnetic Resonance in Medicine Eleventh Scientific Meeting and Exhibition, Toronto, Ontario, May 10-16, 2003.
163. 19th International Congress of Biochemistry & Molecular Biology, Toronto, Canada, July 20-24, 2003.
164. Society for Clinical Neurophysiology Annual Meeting, Freiburg, Germany, October 8-12, 2003.
165. Mini High-field Workshop, November 6-7, 2003.
166. 2nd International Conf on Chemistry and its Applications, Doha, Quatar, December 6-9, 2003.
167. Creative Concepts Conference, Vail, CO, December 11-14, 2003.
168. NMR: A Tool for Biology VI, Pasteur, France, February 2-4, 2004.
169. Biophysical Society, Annual Meeting, Baltimore, MD, February 14-18, 2004.
170. 3rd Annual Design of Medical Devices Conference, Minneapolis, MN, April 9, 2004.
171. Jornada Paulista de Radiologia Conference, Sao Paolo City, Brazil, April 21-24, 2004.
172. Segerfalk Lecture and Symposium, Lund, Sweden, May 6-8, 2004.
173. International Society for Magnetic Resonance in Medicine Twelfth Scientific Meeting and Exhibition, Kyoto, Japan, May 15-21, 2004.
174. Gordon Conference, Colby College, ME, August 8-13, 2004.
175. MIND Institute Meeting, Santa Fe, NM, October 7-10, 2004.
176. Headache Mediterranean Summer School, Santorini, Greece, October 9-12, 2004.
177. International Society of Magnetic Resonance Conference, Ponte Verda Beach, FL, October 24-28, 2004.
178. Frontiers of BioMedical Imaging Symposium, Chicago, IL, November 8-10, 2004.
179. Wissenschaftliches Symposium, Heidelberg, Germany, November 20, 2004.
180. Annual Meeting of Psychiatric Association of Turkey, 9th Annual Spring Symposium, Antalya, Turkey, April 13-17, 2005.
181. International Society for Magnetic Resonance in Medicine 13th Scientific Meeting and Exhibition, South Beach Miami, FL, May 5-13, 2005.
182. Gordon Conference on Magnetic Resonance, New London, CT, June 5-10, 2005.
183. Ultrahigh Magnetic Field MRI Symposium, Tokyo, Japan, October 1-3, 2005.
184. 2005 Minerva-Gentner Symposium, A Dive into Magnetic Resonance, Eilat, Israel, December 11-13, 2005.
185. DFG Excellence Academy for Medical Technology, Munich, Germany, February 13-18, 2006.

186. Biomedical Magnetic Resonance Imaging and Spectroscopy at Very High Fields, Würzburg, Germany, February 16-18, 2006.
187. Ten Years of 3 Tesla- What is Next?, Berlin, Germany, February 20-21, 2006.
188. 31st FEBS Congress, Istanbul, Turkey, June 24-29, 2006.
189. Gordon Conference on In Vivo Magnetic Resonance, Mt Holyoke College, South Hadley, MA, July 23-26, 2006.
190. AFAR-NYAS Conf on Imaging the Aging Brain, New York, NY, May 16-17, 2006.
191. High Field Cardiovascular MR Workshop Sponsored by NIH, Washington, DC, September 21-22, 2006.
192. Horizons of NMR Based Research at the beginning of 21th Century, Ulm, Germany, October 13, 2006

INVITED LECTURES (2009 to latest update (20 Oct 2016))

1. International Society of Magnetic resonance in Medicine. April 21, 2009; Honolulu, Hawaii
2. Human Brain Mapping (HBM) 2009: Keynote Lecture; San Francisco, USA. June 22, 2009
3. ESMRMB. Sir Peter Mansfield Lecture; Antalya, Turkey. October 1, 2009
4. EMBS. Keynote Lecture; September 4, 2009
5. Siemens 7T User Meeting LEIPZIG. September 13, 2009, Leipzig, Germany
6. Extremely High field MRI Workshop; Soul, South Korea for November 6, 2009
7. fMRI symposium: Institute of Neurobiology Queretaro (Mexico); November 18, 2009
8. University College LONDON; February 4, 2010, London, UK
9. OXFORD University; February 5, 2010, Oxford, UK
10. University of Florida Centennial Lecture; March 9, 2010
11. Montreal Neurological Institute; April 9, 2010, Montreal, Canada
12. Berlin, MR Symposium, Max Delbrueck Center; April 16, 2010 to April 17, 2010, Berlin, Germany
13. 51st ENC, Keynote Lecture; April 22, 2010. Daytona Beach, Florida
14. Copenhagen Ultrahigh field workshop; May 9, 2010
15. Biomedical Imaging Workshop. May 24, 2010, Minneapolis, MN
16. Chemistry-Biology Symposium at University of Minnesota, May 26, 2010
17. Human Brain Mapping (HBM) 2010: Advanced fMRI Course; June 6, 2010, Barcelona
18. World Wide Magnetic Resonance Conference July 4, 2010 to July 9, 2010; Florence, Italy
19. 5th Annual Glen D. Dobben Memorial Lecture, University of Illinois, Chicago
20. Duke University, Center for Molecular and Biological Imaging Symposium on Data Visualization, 12 December 2010
21. Lecture as Recipient of Honorary Doctorate from University of Maastricht; January 20, 2011, Maastricht, Netherlands
22. ASFNR Annual Meeting. Keynote Lecture, 4 March 2011
23. Gairdner Foundation. Hotchkiss Brain Institute Symposium, March 17, 2011, Calgary
24. UltraHighField (UHF) MR symposium, 24 June 2011, Berlin, Germany,
25. Stanford University, Department of Psychology, March 9, 2011
26. Keynote Lecture, International Conference on Medical Physics (ICMP), 17-20 April, 2011, Porto Alegra, Brazil

27. Cold Spring Harbor Laboratory (CSHL), Workshop on Circuits and Connectivity in the Vertebrate Brain, July 17, 2011, Cold Spring Harbor
28. Fifth Workshop of CInAPCe Neurosciences Research Network, 9-13 August 2011; São Paulo, Brazil
29. National Institutes of Health, Seminar.17 August 2011. Bethesda, Maryland
30. 33rd Annual International Conference of the IEEE Engineering in Medicine and Biology (EMBC) Society, 1 Sept 2011, Boston
31. ISMRM Workshop on Mapping Functional Networks for Brain Surgery, 6-9 Sept 2011, Milan, Italy
32. Frontiers in Biomedical NMR Symposium 27 Oct 2011; Tel Aviv, Israel
33. 8th Annual Memphis BioImaging Symposium, 3-4 Nov 2011, Memphis, Tennessee
34. 13th National Medical Physics Congress, 17-19 Nov 2011; Çesme, Turkey
35. Lecture at The Institute for Therapeutics Discovery and Development, February 3, 2012
36. Workshop on Cerebrovascular Organization, 18-22 February 2012; Orlando, Florida
37. 3rd UltraHigh Field Magnetic Resonance symposium, Berlin B.U.F.F. 8 June 2012, Berlin Germany
38. 3rd Biennial Resting State Meeting, 5-8 Sept. 2012; Magdeburg, Germany. Plenary Lecture
39. World Congress on Medical Physics and Biomedical Engineering (WC2012), 26-31 May 2012, Peking, China. Plenary Lecture
40. Plenary Lecture ICMRBS (International Conference on Magnetic Resonance in Biological Systems), August 19-24, 2012, Lyon France
41. Lecture, ETH (Eidgenössische Technische Hochschule), Opening Symposium for the "Bruker-Richard R. Ernst Center of Excellence in Magnetic Resonance", September 18, 2012
42. Imaging in 2020 Conference, September 30 - Oct 4, 2012, Jackson Hole, Wyoming
43. Society of Neuroscience 2012 Annual Meeting (SfN, 2012), 13-17 October 2012, New Orleans
44. Lecture, Georgia Institute of Technology/Emery University, 11 December 2012
45. Plenary Lecture, Symposium to Celebrate Twenty years of fMRI, January 12-13, 2012
46. Opening Plenary Lecture, SCMR (Society of Cardiovascular Magnetic Resonance) 2013 Annual Meeting, February 1- 5, 2013
47. Stanford University Radiology Grand Rounds, February 5, 2013
48. ISMRM Ultra High Field Workshop, Amsterdam, Netherlands, March 2, 2013
49. Symposium in Brain Imaging in Nijmegen, Netherlands, March 6, 2013
50. International Society of Magnetic Resonance (ISMRM) 2013 Annual Meeting, 20-26 April 2013, Salt Lake City. Plenary Lecture on Human Connectome.
51. Cardiac MR Sunrise Course, ISMRM 2013 Salt Lake City, April 25, 2013
52. Lecture UCLA, May 2, 2013
53. International Society for Magnetic Resonance (ISMAR) 2013-18th Triennial Conference May 19-24 May 2013 Rio de Janeiro, Brazil. Plenary Lecture
54. Brain Dynamics Workshop Institute of Theoretical Applied Physics (ITAP), July 1, 2013 to July 4, 2013
55. Lecture, University of Iowa, September 12, 2013
56. Lecture for NIH Council of Councils, October 24, Bethesda, Maryland
57. Erwin Hahn Lecture, Erwin Hahn Institute, Essen Germany, Sept. 19, 2013

58. David Van Essen Symposium, October 14, 2013
59. 4th Siemens UHF User Meeting,, Nov 15-16, Vienna, Austria
60. Lecture, Duke University, November 26, 2013
61. Key Note: American Society for Functional Neuro-Radiology (ASFNR) Feb 17, 2014, Miami, Florida
62. Neuroscience Seminar at Stanford University. Feb 6, 2014, Stanford University, Palo Alto California
63. NIH P41 Director's Meeting, Mar 24, 2014, Washington DC
64. UT Southwestern Symposium on Imaging Brain Injury. May 1, 2014, Dallas, Texas
65. MR Center Opening Symposium Maastricht. May 19, 2014, Maastricht, Netherlands
66. Richard Ernst Medal Lecture, May 20, 2014, Zurich, Switzerland
67. Lecture, Sabancı University, İstanbul., May 28, 2014, Istanbul, Turkey
68. Neuroscience Congress, Istanbul. May 29, 2014, Istanbul, Turkey
69. Keynote Joint Turkish-German Symposium on Human Neuroscience Jun 5, 2014, Berlin, Germany
70. Berlin Ultrahigh Field Facility (BUFF) Ultra High Field SYMPOSIUM. Jun 20, 2014, Berlin Germany
71. Plenary Lecture: International Congress of Clinical Chemistry and Laboratory, Jun 22, 2014 to Jun 26, 2014, Istanbul, Turkey
72. Grand Rounds – UCSF Memory and Aging Center UCSF, Aug 8, 2014, San Francisco, CA 94158
73. 4th Biennial Resting-State Brain Connectivity Conference at MIT. Sep 11, 2014, MIT, Cambridge Massachusetts
74. Lecture at NIH, on Human Connectome Project, Sept 24, 2014, Bethesda Maryland
75. GE Global Research Whitney Symposium. Oct 20, 2014, Niskayuna, NY 12309
76. Seminar: CORNEL NYC. Oct 30, 2014, New York, NY
77. Mini Medical School. University of Minnesota, Oct 27, 2014
78. Seminar, UT Health Science Center, San Antonio, Nov 21, 2014
79. University of California Santa Barbara, Feb 23, 2015, and Mar 02, 2015; Santa Barbara, California
80. International Congress on Schizophrenia Research: Mar 30, 2015 to Mar 31, 2015. Colorado Springs CO
81. Weizmann Institute May 3, 2015, Rehovot Israel
82. High-resolution MRI meeting in Salerno, May 7, 2015 to May 9, 2015, Salerno Italy
83. CSH-Asia meeting on International Brain Project, June 19-22, 2015, Shanghai, China
84. Ultra High Field MRI Meeting BERLIN-BUCH, Jun 26, 2015, Berlin Germany
85. Lecture at UCLA, Aug 10, 2015
86. IEEE Milano, Annual Meeting, Keynote, Aug 25, 2015 to Aug 27, 2015, Milano Italy
87. Ultra-high field MRI: Transition to Human 7T in Finland. Oct 8, 2015 to Oct 9, 2015, Helsinki Finland
88. Columbia Chemistry Department Colloquium, Oct 22, 2015, New York NY
89. Brain Sciences Annual lecture, University of Minnesota, Dec 18, 2015Minneapolis, MN

90. NeuroScience Colloquium, University of Minnesota, Dec 2, 2015, Minnepolis, Minnesota
91. Royal Society meeting on fMRI: Interpretation of BOLD; a dialogue between cognitive and cellular neuroscience, Jan 28, 2016 to Jan 29, 2016, Royal Society Chicheley Hall, London
92. UltraHighField MRI ISMRM workshop, Mar 6, 2016 to Mar 9, 2016, Heidelbrerg Germany
93. 2016 Keystone Symposia on The Brain. Alpbach Austria, May 22, 2016 to May 27, 2016, Alpbach, Austria
94. The BRAIN FORUM, May 26, 2016 to May 27, 2016, Lausanne Switzerland
95. Plenary FEBS 2016. Sep 3, 2016 to Sep 8, 2016, Kuşadası
96. Keynote MICCAI 2016, Oct 17, 2016 to Oct 21, 2016, Athens Greece

PEER REVIEWED PUBLICATIONS:

1. Studies of Individual Carbon Sites of Azurin from *Pseudomonas aeruginosa* by Natural Abundance Carbon-13 Nuclear Magnetic Resonance Spectroscopy. K Ugurbil, RS Norton, A Allerhand and R Bersohn. *Biochemistry* . 16: 86-894, 1977.
2. Nuclear Magnetic Resonance Study of Exchangeable and Non-Exchangeable Protons in Azurin from *Pseudomonas aeruginosa*. K Ugurbil, and R Bersohn. *Biochemistry*. 16: 3016-3023, 1977.
3. Study of the Triplet State Properties of Tyrosines and Tryptophan in Azurins using Optically Detected Magnetic Resonance. K Ugurbil, AH Maki, and R Bersohn (1977) *Biochemistry* . 16: 901-902, 1977.
4. Tyrosine Emission in the Tryptophanless Azurin from *Pseudomonas fluorescence*. K Ugurbil and R Bersohn. *Biochemistry* . 16: 895-900, 1977.
5. Nuclear Magnetic Resonance and Chemical Modification Studies of Bovine Erythrocyte Superoxide Dismutase: Evidence for Zinc Promoted Organization of the Active Site Structure. SJ Lippard, AR Burger, K Ugurbil, MW Pantaliano and JS Valentine. *Biochemistry* . 16: 1136-1141, 1977.
6. Physical and Chemical Studies of Bovine Erythrocyte Super Oxide Dismustase. SJ Lippard, AR Burger, K Ugurbil, JS Valentine and MW Pantaliano (1977) *Advances in Chemistry* Series No. 162, ed. K.N. Raymond, p. 251, *(Book Chapter)*.
7. Nuclear Magnetic Resonance Measurements of ATPase Kinetics in Aerobic *E. coli* Cells. TR Brown, K Ugurbil and RG Shulman (1977) *Proc. Natl. Acad. Sci*.. 74: 5551-55534, 1977.
8. *In vivo* ^{31}P NMR Studies of Bacterial and Mammalian Cells. RG Shulman, G Navon, S Ogawa, T Yamane, P Glynn, TR Brown, K Ugurbil and H Rottenberg. Proc. of Conference, University of Missouri (1977), *(Book Chapter)*.
9. ^{31}P High Resolution NMR Studies of Bioenergetics in *E. coli*. RG Shulman, G Navon, S Ogawa, T Yamane, TR Brown, K Ugurbil, P Glynn and H Rottenberg. Proc. of Conference, Spetsai, Greece (1977), *(Book Chapter)*.
10. ^{31}P NMR Study of Bioenergetics and Glycolysis in Anaerobic *E. coli* Cells. K Ugurbil, RG Shulman, H Rottenberg and P Glynn. *Proc. Natl. Acad. Sci. USA.* 75: 2244-2248, 1978.
11. High Resolution ^{31}P and ^{13}C Magnetic Resonance Studies of Glucose Metabolism in *E. coli*. K Ugurbil, TR Brown, JA den Hollander, P Glynn and R. Shulman. *Proc. Natl. Acad. Sci. USA* . 75: 3742-3746, 1978.
12. Adenine Nucleotide Storage and Secretion in Platelets as Studied by ^{31}P Nuclear Magnetic Resonance. K Ugurbil, H Holmsen and RG Shulman. *Proc. Natl. Acad. Sci. USA* . 76: 2227-2231, 1979.

13. High Resolution ^{31}P and ^{13}C NMR Studies of *E. coli In Vivo*. K Ugurbil, RG Shulman and TR Brown (1979) In: Magnetic Resonance in Biology, p. 537-589, editor RG Shulman, Academic Press, New York, N.Y., *(Book Chapter)*.

14. Cellular Applications of ^{31}P and ^{13}C Nuclear Magnetic Resonance. RG Shulman, TR Brown, K Ugurbil, S Ogawa, SM Cohen and JA den Hollander. *Science.* 205: 160-166. 1979.

15. ^{13}C Nuclear Magnetic Resonance Studies of Anaerobic Glycolysis in Suspensions of Yeast Cells. JA den Hollander, TR Brown, K Ugurbil and RG Shulman. *Proc. Natl. Acad. Sci. USA.* 76: 6096-6100, 1979.

16. Phosphorus-31 Nuclear Magnetic Resonance Studies of the Effect of Oxygen upon Glycolysis in Yeast. JA den Hollander, K Ugurbil, TR Brown and RG Shulman. *Biochemistry* . 20: 5871-5880, 1981.

17. Nucleotide Compartmentation: Radioisotopic and Nuclear Magnetic Resonance Studies. K Ugurbil and H Holmsen (1981) In: Platelets in Biology and Pathology-2, p. 147-177. Ed. JL Gordon, Elsevier, North Holland, Amsterdam, *(Book Chapter)*.

18. NMR Studies of Intracellular pH and Phosphate Metabolism During Cell Cycle of *Saccharomyces cerevisiae*. RJ Gillies, K Ugurbil, J den Hollander and RG Shulman. *Proc. Natl. Acad. Sci. USA.* 78: 2125-2129, 1981.

19. ^{31}P Nuclear Magnetic Resonance Studies of Intact Anchorage-Dependent Mouse Embryo Fibroblasts. K Ugurbil, D Guernsey, TR Brown, N Tobkes, P Glynn and IS Edelman. *Proc. Natl. Acad. Sci. USA* . 78: 4843-4847, 1981.

20. Chemical Shift Imaging in 3D. TR Brown, BM Kincaid and K Ugurbil. *Proc. Natl. Acad. Sci. USA* . 79: 3523-3526, 1982.

21. ^{31}P Nuclear Magnetic Resonance Studies of Bioenergetics in Wild Type and ATPase - *E. coli* Cells. K Ugurbil, RG Shulman, H Rottenberg and P Glynn. *Biochemistry* . 21: 1068-1075, 1982.

22. Spatial Range of Electron Transfer Processes. The Complex Cytochrome C - Fe $(CN)_6$. JJ Hopfield and K Ugurbil (1982) In: Electron Transport and Oxygen Utilization, ed. Ho, C., pp. 81-84, Elsevier, New York, N.Y., *(Book Chapter)*.

23. Observation of Mitochondrial Phosphate in Intact Heart by ^{31}P NMR. P Garlick, T Brown, R Sullivan and K Ugurbil. *J. Cell. Mol. Cardiol.* 15: 409-416, 1983.

24. ^{31}P NMR Studies of Nucleotide Storage in the Dense Granules of Pig Platelets. K Ugurbil, M Fukami and H Holmsen. *Biochemistry* . 23: 409-416, 1984.

25. Protons Nuclear Magnetic Resonance Studies of Amine and Nucleotide Storage in Dense Granules of Platelets. K Ugurbil, M Fukami and H Holmsen. *Biochemistry* .23: 416-428, 1984.

26. High Resolution Proton NMR Studies of Perfused Rat Hearts. K Ugurbil, M Petein, R Maidan, S Michurski, JN Cohn and A From (1984) *FEBS Lett.,* 167: 73-78, 1984.

27. Histamine Uptake in Pig Platelets and Isolated Dense Granules. M Fukami, H Holmsen and K Ugurbil. *Biochemical Pharmacology* . 33: 3869-3874, 1984.

28. Biophysical Measurements Using Nuclear Magnetic Resonance. TR Brown and K Ugurbil (1984) in: Structural and Resonance Techniques in Biological Research, pp. 2-84, Ed., DL Rousseau. Academic Press, New York, NY, *(Book Chapter)*.

29. Storage Mechanisms in Dense Granules; Studies with Nuclear Magnetic Resonance. K Ugurbil (1985) in: Platelet Responses and Metabolism, ed. H Holmsen. CRC Press, Boca Raton, USA, 153-70, *(Book Chapter)*.

30. Removal of the Broad Resonance in ^{31}P NMR Spectra of Intact Tissues. WJ Thoma, LM Henderson and K Ugurbil. *J. Magn. Reson.* 61: 141-144, 1985.

31. ^{1}H NMR Studies of Electron Exchange Kinetics of *Pseudomonas aeruginosa* Azurin. K Ugurbil and S Mitra. *Proc. Natl. Acad. Sci., USA,* 82: 2039-2043, 1985.
32. Magnetization Transfer Measurements of Individual Rate Constants in the Presence of Multiple Reactions. K Ugurbil. *J. Magn. Reson.* 64: 207-219, 1985.
33. Magnetization Transfer Measurements of Creatine Kinase and ATPase Rates in Intact Hearts. K Ugurbil. *Circulation .* 72: (Supp. IV), 94-96, 1985.
34. Selective Detection of Resonances from Protons Attached to ^{13}C Nuclei. P Kingsley-Hickman and K Ugurbil. *J. Magn. Reson.* 64: 339-342, 1985.
35. Measurement of an Individual Rate Constant in the Presence of Multiple Exchanges: Application to Myocardial Creatine Kinase Rates. K Ugurbil, M Petein, R Maiden, S Michurski and A From. *Biochemistry*. 25: 100-108, 1986.
36. ^{13}C Nuclear Magnetic Resonance Studies of Anaerobic and Aerobic Glycolysis in *Saccharomyces cerevisiae*. JA den Hollander, K Ugurbil, TR Brown, M Bednar, C Redfield and RG Shulman. *Biochemistry .* 25: 203-212, 1986.
37. ^{31}P and ^{13}C NMR Studies of Intermediates of Aerobic and Anaerobic Glycolysis in *Saccharomyces cerevisiae*. JA den Hollander, K Ugurbil and RG Shulman. *Biochemistry .* 25: 212-219, 1986.
38. ^{31}P NMR Measurement of ATP Synthesis Rate in Perfused Intact Hearts. P Kingsley-Hickman, EY Sako, PA Andreone, JA St Cyr, S Michurski, JE Foker, AHL From, M Petein and K Ugurbil. *FEBS Lett.* 198: 159-163, 1986.
39. Cd-113 NMR Study of Bovine Thrombin Fragment I and Factor X. PB Kingsley-Hickman, GL Nelsestuen and K Ugurbil. *Biochemistry .* 25: 3352-3355, 1986.
40. *In vivo* Spatially Localized Surface Coil NMR Spectroscopy Utilizing a Fourier Series Window Function and Two Surface Coils (1986) M Garwood, K Ugurbil, T Schleich, M Petein, E Sublett, AHL From and R Bache. *J. Magn. Reson.* 69: 576-581, 1986.
41. P-31 NMR Studies of Respiratory Regulation in the Intact Myocardium. AH. From, M Petein, S Michurski, S Zimmer and K Ugurbil. *FEBS Lett.* 206: 257-261, 1986.
42. pH Measurements by ^{31}P NMR in Bacterial Suspensions Using Phenyl Phosphonate as a Probe. WJ Thoma, JG Steiert, RL Crawford and K Ugurbil. *Biochim. Biophys. Res. Commun.* 138: 1106-1109, 1986.
43. Saturation Transfer Studies of ATP-P^{i} Exchange in Isolated Perfused Rat Liver. WJ Toma and K Ugurbil. *Biochim. Biophys. Acta.* 893: 225-231, 1987.
44. Amplitude and Phase Modulated Pulses to Achieve 90# Plane Rotations with Highly Inhomogeneous B_1 Fields. K Ugurbil, M Garwood and RM Bendall. *J. Magn. Reson.* 72: 117-185, 1987.
45. Adiabatic Refocusing Pulse Which Compensates for Variable RF Power and Off-Resonance Effects. RM Bendall, K Ugurbil and M Garwood, D Pegg. *Magn. Reson. in Medicine .* 4: 493-499, 1987.
46. Fourier Series Windows On and Off-Resonance Using Multiple Coils and Longitudinal Modulation. M Garwood, PM Robitaille and K Ugurbil. *J. Magn. Reson.* 75: 244-261, 1987.
47. ^{31}P NMR Studies of the Kinetics and Regulation of Oxidative Phosphorylation in the Intact Myocardium. K Ugurbil, PB Kingsley-Hickman, EY Sako, S Zimmer, P Mohanakrishnan, PML Robitaille, WJ Thoma, A Johnson, JE Foker and AHL From (1987) *Annals N.Y. Acad. Sci. 508*, 265-287, *(Book Chapter)*.
48. ^{31}P NMR Studies of ATP Synthesis and Hydrolysis Kinetics in the Intact Myocardium. PB Kingsley-Hickman, EY Sako, P Mohanakrishnan, PML Robitaille, JE Foker, AHL From and K

Ugurbil. *Biochemistry* .26: 7501-7510, 1987.

49. Amplitude and Frequency/Phase Modulated Refocusing Pulses that Induce Plane Rotations Even in the Presence of Inhomogeneous Fields. K Ugurbil, M Garwood, A Rath and MR Bendall. *J. Magn. Reson.* 78, 472-497, 1988.
50. Optimization of Modulation Functions to Improve Insensitivity of Adiabatic Pulses to Variations in B_1 Magnitude. K. Ugurbil, M. Garwood and A. Rath. *J. Magn. Reson.* 80: 448-469, 1988.
51. ATP Synthesis Kinetics and Mitochondrial Function in the Postischemic Myocardium as Studied by ^{31}P NMR. EY Sako, PB Kingsley-Hickman, AHL From, JE Foker and K Ugurbil. *J. Biol. Chem.* 263: 10600 - 10607, 1988.
52. Magnetic Resonance Imaging with Adiabatic Pulses Using a Single Surface Coil for RF Transmission and Signal Detection. M Garwood, K Ugurbil, AR Rath, MR Bendall, BD Ross, SL Mitchell and H Merkle. *Magn. Reson. in Med.* 9: 25-34, 1988.
53. ^{31}P NMR Studies on the Effects of Some Chlorophenols on *E. coli* and Pentachlorophenol Degrading Bacteria. JG Steiert, WJ Thoma, K Ugurbil and RL Crawford. *J. Bacteriol.* 10: 4954-4957, 1988.
54. Rapid ^{31}P NMR Test of Liver Function. WJ Thoma and K Ugurbil. *Mag. Reson. Med.,* 8: 220-223, 1988.
55. pH and Compartmentation of Isolated Perfused Rat Liver Studied by ^{31}P and ^{19}F NMR. WJ Thoma and K Ugurbil. *NMR in Biomedicine.* Vol. 1, No. 2, 1988.
56. Spectroscopic Imaging and Spatial Localization Using Adiabatic Pulses and Applications to Detect Transmural Metabolite Distribution in the Canine Heart. PM Robitaille, H Merkle, E Sublett, K Hendrich, B Lew, G. Path, AHL From, R Bache and K Ugurbil. *Magn. Reson. Med.* 10: 14-37, 1989.
57. Transmural Metabolite Distribution in Regional Myocardial Ischemia as Studied with ^{31}P NMR. PM Robitaille, B Lew, H Merkle, E Sublett, P Lindstrom, AHL From, M Garwood, RJ Bache and K Ugurbil. *Magn. Reson. Med.* 10: 108-118, 1989.
58. Slice Selection with Gradient Modulated Adiabatic Excitation Despite the Presence of Large B_1 inhomogeneities. AJ Johnson, M Garwood and K Ugurbil. *J. Magn. Reson.* 81: 653-660, 1989.
59. Effect of Adenine on Liver Nucleotide following fructose loading Studied by ^{31}P NMR. WJ Thoma and K Ugurbil. *Am. J. Physiol.* 256: G649-G956, 1989.
60. Injury and Recovery of the Liver from Preservation Assessed by ^{31}P NMR Spectroscopy: The Contrast between Preservation with Collins' Solution and Ringers Lactate Solution. W Vine, WJ Thoma, J Link and K Ugurbil. *NMR in Biomed.* 2: 19-26, 1989.
61. Alterations in Oxidative Function and Respiratory Regulation in the Postischemic Myocardium. SD Zimmer, SP Michurski, P Mohanakrishnan, VK Ulstad, K Ugurbil, .E Foker and AHL From. *J. Biol. Chem.* 264(2): 12402-12411, 1989.
62. Metabolic Consequences of Coronary Stenosis: Transmurally Heterogeneous Myocardial Ischemia Studied by Spatially Localized ^{31}P NMR spectroscopy. K Ugurbil, M Garwood, H Merkle, G Path, P-M Robitaille, K Hendrich, J Zhang, M Tristani, M Yoshiyama, AHL From and RJ Bache. *NMR in Biomedicine .* 2: 317-329, 1989.
63. Transmural High Energy Phosphate Distribution and Response to Alterations in Workload in the Normal Canine Myocardium as Studied with Spatially Localized ^{31}P NMR Spectroscopy. P-M Robitaille, B Lew, H Merkle, G Path, E Sublett, K Hendrich, P Lindstrom, AHL From, M Garwood, RJ Bache, and K Ugurbil. *Magn. Reson.Med.* 16: 91-116, 1990.
64. The Measurement of ATP Synthesis Rates by ^{31}P NMR Spectroscopy in the Intact Myocardium

in vivo. PM Robitaille, H Merkle, E Sako, G Lang, RM Clack, R Bianco, AHL From, J Foker and K Ugurbil. *Magn. Reson. Med.* 15(1): 8-24, 1990.

65. ^{31}P NMR Measurements of Mitochondrial Uncoupling in Isolated Rat Hearts. P Kingsley-Hickman, E Sako, J Foker, AHL From and K Ugurbil. *J. Biol. Chem.* 265: 1545-1550, 1990.
66. Regulation of the Oxidative Phosphorylation Rate in the Intact Cell. AHL From, SD Zimmer, SP Michurski, P Mohanakrishnan, VK Ulstad, WJ Thoma and K Ugurbil. *Biochemistry .* 29: 3731-3743, 1990.
67. The Correlation Between Transmural High Energy Phosphate Levels and Myocardial Blood Flow in the Presence of Graded Coronary Stenosis. G Path, P-M Robitaille, H Merkle, M Tristani, J Zhang, M Garwood, AHL From, RJ Bache and K Ugurbil. *Circ. Research* 67: 660-673, 1990.
68. Perturbation of Liver Metabolism in D-Galactosamine Toxicity Studied with Localized *in vivo* ^{31}P Magnetic Resonance Spectroscopy in Intact Rats. S Weisdorf, K Hendrich, S Buchthal, J Wike, G Bratt, H Merkle, M Garwood, and K.Ugurbil. *Magn. Reson. Med.* 21: 178 - 190, 1991.
69. Phase Modulated Rotating Frame Spectroscopic Localization Using an Adiabatic Plane Rotation Pulse and a Single Surface Coil. K Hendrich, H Merkle, S Weisdorf, W Vine, M Garwood and K Ugurbil. *J. Magn. Reson.* 92: 258 - 275. 1991.
70. Ischemic Contracture Begins when Anaerobic Glycolysis Stops: A ^{31}P NMR Study of Isolated Rat Hearts. PG Kingsley-Hickman, EY Sako, MQ Yang, SD Zimmer, K Ugurbil, JE Foker, AHL From. *Am. J. Physiol.* 261*, (Heart Circ. Physiol.30)* H469--- H478. 1991.
71. Spectroscopic Imaging Using Variable Angle Excitation from Adiabatic Plane Rotation Pulses. K Hendrich, M Garwood and K Ugurbil. *J. Magn. Reson.* 19: 496-501, 1991.
72. B_1 Voxel Shifting of Phase-Modulated Spectroscopic Localization Techniques. K Hendrich, H Liu., H Merkle, J Zhang, and K Ugurbil. *J. Magn.Reson*. 97: 486-497, 1992.
73. B_1 Insensitive adiabatic RF pulses: M Garwood, K Ugurbil. (1992) *NMR, Basic Principles and Progress,* 26, pp 110-147, *(Book Chapter)*.
74. Nuclear Magnetic Resonance Studies of Amine Storage Mechanisms in Platelet Dense Granules: H. Holmsen and K.Ugurbil, (1992) *in "The Platelet Amine Storage Granule"* ed. Kenneth M. Meyers, and Charles D. Barnes, CRC Press, *(Book Chapter)*.
75. B1 Insensitive Heteronuclear Adiabatic Polarization Transfer for Signal Enhancement: H Merkle, H Wei, M Garwood, K Ugurbil. *J. Magn. Reson.* 99: 480-494, 1992.
76. Intrinsic Signal Changes Accompanying Sensory Stimulation Functional Brain Mapping with Magnetic Resonance Imaging: S Ogawa, D Tank, R Menon, J Ellermann, S-G Kim, H Merkle, K Ugurbil. *Proc. Natl. Acad. Sci.* 89: 5951-5955, 1992.
77. Dynamic Mapping of the Human Visual Cortex by High Speed Magnetic Resonance Imaging: A Blamire, S Ogawa, K. Ugurbil, D Rothman, G McCarthy, J Ellermann, F Hyder, Z Rattner, RG Shulman. *Proc. Natl. Acad. Sci.* 89: 11069 - 11073, 1992.
78. Functional Brain Mapping Using MRI: Signal Changes Accompanying Visual Stimulation: R Menon, S Ogawa, S-G Kim, J Ellermann, H Merkle, D Tank, K Ugurbil. *Invest. Radiol.* 27: Supplement 2, S47 - S53, 1992.
79. ^{31}P NMR Spectroscopy of the Human Heart at 4 Tesla: Detection of Substantially Uncontaminated Cardiac Spectra and Differentiation of Subepicardium and Subendocardium. R S Menon, K Hendrich, X Hu, and K Ugurbil. *Magn Reson Med* 26: 368 -376, 1992.
80. Nuclear Magnetic Resonance Studies of Kinetics and Regulation of Oxidative ATP Synthesis in the Myocardium. K Ugurbil and AHL From. (1992) in *"Cardiovascular Magnetic Resonance Spectroscopy"*, p 63 - 92. Editors, S Schafer and R S Balaban, Kluwer Academic Publishers, *(Book Chapter)*.

81. The Response of the Myocardial High Energy Phosphates and Wall Thickening to Prolonged Regional Hypoperfusion Induced by Sub-total Coronary Stenosis: J Zhang, G Path, V Chepuri, Y Xu, M Yoshiyama, RJ Bache, AHL From and K Ugurbil. *Magn. Reson. Med* . 1993 30, 28 - 38.
82. Bioenergetic Abnormalities Associated with Severe Left Ventricular Hypertrophy: R Bache, J Zhang, G Path, H Merkle, K Hendrich, AHL From, K Ugurbil. *J Clin Invest* . 92, 993 -1003, 1993.
83. Contrast-Enhanced First Pass Myocardial Perfusion Imaging: Correlation Between Myocardial Blood Flow in Dogs at Rest and During Hyperemia. N Wilke, C Simm, J Zhang, J Ellermann, X Ya, H Merkle, G Path, H Ludemann, RJ Bache, K Ugurbil. *Magn. Reson. Med.* 29: 485 - 497, 1993.
84. Functional Imaging of The Human Motor Cortex. S-G Kim, J Ashe, AP Georgopoulos, H Merkle, JM Ellermann, RS Menon, S Ogawa, K Ugurbil. *J. Neurophysiol*. 69: 297-302, 1993.
85. Functional Brain Mapping by Blood Oxygenation Level-Dependent contrast Magnetic Resonance Imaging: A Comparison of Signal Characteristics with a Biophysical Model. S Ogawa, RS Menon, DW Tank, SG Kim, H Merkle, JM Ellermann, and K Ugurbil. *Biophysical Journal*, 64, 803-812, 1993.
86. Magnetic Resonance Functional Imaging of Broca's Area During Internal Speech Word Generation. RM Hinke, X Hu, AE Stillman, S-G Kim, and K Ugurbil. *Neuro Report* 4:6, 675-678, 1993.
87. Functional Magnetic Resonance Imaging of Motor Cortex: Hemispheric Asymmetry and Handedness. S-G Kim, J Ashe, K Hendrich, JM Ellermann, H Merkle, K Ugurbil, and AP Georgopoulos. *Science*. 261, 615 -617, 1993.
88. 4 Tesla Gradient Recalled Echo Characteristics of Photic Stimulation Induced Signal Changes in the Human Primary Visual Cortex. RS Menon, S Ogawa, DW Tank, and K Ugurbil *Magn Reson Med* 30, 380 - 387, 1993.
89. Imaging at High Magnetic Fields; Initial Experiences at 4 Tesla. K Ugurbil, M Garwood, K Hendrich, R Hinke, X Hu, RS Menon, H Merkle, S Ogawa, R Salmi. *Magn Reson Quarterly* 9, 259 - 277 (1993).
90. ^{31}P Nuclear Magnetic Resonance Studies of Experimental Myocardial Ischemia. RJ Bache, AHL From, J Zhang, K Ugurbil. Pohost GM, (ed).*Cardiovascular Applicztions of Magnetic Resonance,* Mount Kisco, NY Futura Publishing Co., Inc; pp 317-327, 1993 (Book Chapter).
91. A New Strategy for Spectroscopic Imaging. X Hu, M Patel, K Ugurbil. *J. Magn Reson.* B 103, 30 - 38, 1994.
92. Spatial Patterns of Functional Activation of the Cerebellum Investigated Using High Field (4T) Magnetic Resonance Imaging. JM Ellermann, D Flament, S-G Kim, Q-G Fu, H Merkle, TJ Ebner, K Ugurbil. *NMR in Biomed*, 7, 63 - 68, 1994.
93. Accurate T_1 Determination from Inversion Recovery Images: Application to Human Brain at 4 Tesla. S-G Kim, X Hu, K Ugurbil. *Magn Res Med,* 31, 445-449, 1994.
94. Potential Pitfalls of Functional MRI using Conventional Gradient-Recalled Echo Techniques. S-G Kim, K Hendrich, X Hu, H Merkle, K Ugurbil. *NMR in Biomed* , 7, 69 - 74, 1994.
95. High Energy Phosphate Responses to Tachycardia and Inotropic Stimulation in Left Ventricular Hypertrophy. R Bache, J Zhang, G Path, H Merkle, K Hendrich, AHL.From, K Ugurbil. *Am J Physiol*. 266 (Heart Circ.Physiol. 35); H1959-H1970, 1994.
96. Abnormal Myocardial Bioenergetics in a Canine Model of Left Ventricular Dysfunction. KM McDonald, M Yoshiyama, GS Francis, K Ugurbil, JN Cohn, J Zhang. *JACC*, 23, 786-793, 1994.
97. Surface Coil Cardiac Tagging and ^{31}P Spectroscopic Localization with B_1-Insensitive Adiabatic Pulses. K Hendrich, Y Xu, S-G Kim, K Ugurbil. *Magn Reson Med*. 31, 541 - 545, 1994.

98. Functional Imaging of the Brain by Nuclear Magnetic Resonance. J Ellermann, M Garwood, K Hendrich, R Hinke, X Hu, S-G Kim, R Menon, H Merkle, S Ogawa, K Uğ urbil. In *NMR in Physiology and Medicine* , p 137- 150, Academic Press, Ed. R. Gillies, 1994 (Book Chapter)
99. Effects of Hyperperfusion on Myocardial High Energy Phosphate Compound Distribution and Contractile Function. J Zhang, L Shorr, M Yoshiyama, H Merkle, M Garwood, K Ugurbil, RJ Bache, AHL From. *Am J Physiol*, 267 (Heart. Circ. Physiol. 36) H894 - H904, 1994.
100. Activation of Cerebellar Output during Cognitive Processing. Seong-Gi Kim, Kamil Ugurbil, and Peter L. Strick. *Science*. 265, 949-951, 1994.
101. Contrast Agents for Cerebral Perfusion MR Imaging. Evan C. Unger, Kamil Ugurbil, Richard L. Latchaw. *JMRI* 4, 235 - 242, 1994. (Review)
102. Concepts of Myocardial Perfusion Imaging in MRI. N. Wilke, M.Jerosch-Herold, A.E. Stilmann, K. Kroll, N. Tsekos, H. Merkle, T. Parish, Y. Wang, J. Bassingthwaighte, R. J. Bache, and K. Ugurbil. *Mag Reson Quarterly* , 10, 249-286, 1994. (Review)
103. Mapping Human Brain Activity Non-invasively by Nuclear Magnetic Tesonance. K. Ugurbil, S. Ogawa, R. Menon, S-G. Kim, X. Hu, R. Hinke, J. Ellerman, K. Hendrich, H. Merkle, P. Anderson, G. Andriani, and J. Strupp. in *New Horizons in Neuropsychology*, p. 3-22, Ed. M. Sugishita, Elsevier Science B.V. 1994. (Review)
104. Spectroscopic Imaging of Circular Voxels with a Two-Dimensional Fourier Series Window Technique. K Hendrich, X Hu, RS Menon, P Camarata, R Heros, K Ugurbil.*J Magn Reson.*, Series B 105, 225-232, 1994.
105. Functional MRI using the BOLD approach: Field Strength and Sequence Issues. Ravi S. Menon, Seong-Gi Kim, Xiaoping Hu, Seiji Ogawa and Kamil Ugurbil. Chapter 17, pp327-334 in *Diffusion and Perfusion Magnetic Resonance Imaging*, edited by D. Le Bihan, Raven Press, Ltd. New York, 1995
106. Functional Imaging of the Motor System. James Ashe and Kamil Ugurbil. *Current Opinion in Neurobiology*. 4, 832-839, 1994.
107. Reduction of Truncation Artifacts in CSI by Extended Sampling using Variable TR. X Hu, M Patel, W Chen, K Ugurbil. *J Magn Reson* , Series B 106, 292 - 296, 1995.
108. Transmural Bioenergetic Responses of Normal Myocardium to High Workstates. J Zhang, D Duncker, Y Xu, Y Zhang, G Path, H Merkle, K Hendrich, AHL From, R Bache, and K Ugurbil. *Am J Physiol*, 268 (Heart Circ. Physiol 37), H1891- H1905, 1995.
109. Effects of Dobutamine on Myocardial Blood Flow, Contractile Function, and Bioenergetic Responses Distal to a Coronary Stenosis. Implications with Regard to Dobutamine Stress Testing. J Zhang, G Path, V Chepuri, DC Homans, H Merkle, K Hendrich, K Ugurbil, RJ Bache, AHL From. *Am. Heart.J.* , 129, 330-342, 1995.
110. Chemical Shift Imaging: An Introduction to Its Theory and Practice. Hu X, Chen W, Patel MS, and Ugurbil K. In "Biomedical Engineering Handbook", J.D. Bronzino ed, CRC Press, Salem, MA, pp. 1036-1045, 1995. (Review)
111. Regional Myocardial Blood Volume and Flow via MR First Pass Imaging in Concert with Polylysine-Gadolinium-DTPA. N Wilke, K Kroll, H Merkle, Y Ischibaschi, Y Xu, Y Zhang, J Zhang, A Mühler, AE Stillman, JB Bassingthwaighte, R Bache, K Ugurbil. *JMRI, 5:227*-237, 1995.
112. Transmural Distribution of Glucose Uptake in Normal and Post-Ischemic Canine Myocardium. M Yoshiyama, H Merkle, M Garwood, AHL From, RJ Bache, K Ugurbil, J Zhang. *NMR in Biomed*, 8, 9-18, 1995.
113. An *in Vivo* ^{31}P Magnetic Resonance Spectroscopy Study of Uridine Excess in Rats fed Orotic Acid. S Weisdorf, K Hendrich, H Liu, J Wike, H Merkle, L Bowers, K Ugurbil. *Biochem and Molecul Med*. 54, 43-52, 1995.

114. BOLD Based Functional MRI at 4 Tesla Includes a Capillary Bed Contribution: Echo-Planar Imaging Correlates with Previous Optical Imaging Using Intrinsic Signals. R. S. Menon, S. Ogawa, X. Hu, J. P. Strupp, P. Andersen, and K. Ugurbil. *Magn Reson Med.* 34, 308-, 1995.
115. Functional Magnetic Resonance Imaging of the Brain Using a 4.0-T System. R Latchaw & K Ugurbil (1995) *Current Review of MRI* 1st Edition ed. J Beltran, p. 104. (*Book Chapter*)
116. Functional MR Imaging of Perceptual and Cognitive Functions. R Latchaw, K Ugurbil & X Hu (1995) *Neuroimaging Clinic of North America* vol 5 ed(s). J Kucharczyk, ME Moseley, T. Roberts, WW Orrison, Jr, p. 193. (*Book Chapter*)
117. High Contrast and Fast 3D Magnetic Resonance Imaging at High Magnetic Fields. J-H Lee, M Garwood, R Menon, G Adriany, P Andersen, CL Truwit, and K Uğ urbil. *Magn Reson Med.* 34: 308-312, 1995.
118. T1-weighted Fast Anatomical Imaging of the Heart and Assessment of Myocardial Perfusion with Arrhythmia Insensitive Magnetization Preparation. NV. Tsekos, Y Zhang, H Merkle, N Wilke, M Jerosch-Herold, A Stillman and K Uğ urbil. *Magn Reson Med.* 34: 530 – 536, 1995.
119. Myocardial Tagging with B1 Insensitive Adiabatic DANTE Inversion Sequences. NV. Tsekos, M Garwood, H Merkle, Y Xu, N Wilke and K Uğ urbil. *Magn Reson Med. 34:* 395 -401, 1995.
120. A Comparison of T2*-weighted Sequences for Functional MRI. Hu X, Erhard P, Kim S-G, Menon R, Andersen P, Adriany G, Strupp J and Ugurbil K. *Int J Imaging Sys Tech* 1995; 6:184-190.
121. Functional MRI of Human Motor Cortices during Overt and Imagined Finger Movements. Kim S.-G., Jennings, JE, Strupp, JP, Andersen, P and Ugurbil, K. *Int J Imaging Sys Tech)* 1995; 6:271-279.
122. Effect of Left Ventricular Hypertrophy Secondary to Chronic Pressure Overload on Transmural Myocardial 2-Deoxyglucose Uptake: A ^{31}P NMR Spectroscopic Study. Zhang J, Duncker DJ, Ya X, Zhang Y, Pavek T, Wei H, Merkle H, Ugurbil K, From AHL, Bache RJ. *Circulation* 1995; 92:1274-1283.
123. Functional Magnetic Resonance Imaging as a Managment Tool for Cerebral Arteriovenous Malformations Latchaw RE, Hu X, Ugurbil K, Hall WA, Madison MT, Heros RC *Neurosurgery* 1995; 37:619-626.
124. Quantitative Relations Between Functional Activation of the Superior Parietal Lobule (SPL) and Performance in a Mental Rotation Task. G.A. Tagaris, S.-G. Kim, J.P. Strupp, P. Andersen, K. Ugurbil and A.P. Georgopoulos *NeuroReport* 1996; 7:773-777.
175. Comparison of T2*-Weighted Sequences for Functional MRI. Hu X, Erhard P, Le, TH, Kim S-G, Menon R, Andersen P, Adriany G, Strupp JP, Ugurbil K. Int J of Imaging Systems and Technology 1995; 6:184-190.
126. Observation of Resolved Glucose Signals in 1H NMR Spectra of the Human Brain at 4 Tesla. Gruetter R, Garwood M, Ugurbil K, Seaquist E *Magn Reson Med* 1996; 36:1-6.
127. Mental Rotation Studied by Functional Magnetic Resonance Imaging at High Field (4 Tesla): Performance and Cortical Activation. Tagaris GA, Kim, S-G, Strupp JP, Andersen P, Ugurbil K, Georgopoulos AP *J of Cogn Neurosci* 1997; 9:419-432.
128. Functional and Bioenergetic Features of Post-infarction Left Ventricular Remodeling in a New Porcine Model: An MRI and 31P MRS study. Zhang J, Wilke N, Zhang Y, Wang C, Eijgelshoven MHJ, Cho YK, Murakami Y, Ugurbil K, Bache RJ, From AHL *Circulation* 1996; 94:1089-1100.
129. Functional Magnetic Resonance Imaging of Cerebellar Activation During the Learning of a Visuomotor Dissociation Task. Flament D, Ellermann JM, Kim S-G, Ugurbil K, Ebner TJ *Human Brain Mapping* 1996; 4:210-226.
130. Spatio-temporal Patterns Revealed in Denoised fMRI Data. Visualization of Information

Processing in the Human Brain: Recent Advances in MEG and Functional MRI. Ogawa S, Mitra PP, Hu X, Ugurbil K (*EEG Supple 47*) eds.: Hashimoto I, Okada YC, Ogawa S 1996; 5-14.

131. ^{31}P Magnetic Resonance Spectroscopy of the Sherpa Heart: A Phosphocreatine/Adenosine Triphosphate Signature of Metabolic Defense Against Hypobaric Hypoxia. Hochachka PW, Clark CM, Holden JE, Stanley C, Ugurbil K, Menon RS *PNAS* 1996; 93:1215-1220.
132. Fast Interleaved Echo-Planar Imaging with Navigator: High Resolution Anatomic and Functional Images at 4 Tesla. Kim S-G, Hu X, Adriany G, Ugurbil K *Magn Reson Med* 1996; 35:895-902.
133. Limitations of Temporal Resolution in Functional MRI. Kim S-G, Richter W, Ugurbil K *Magn Reson Med* 1997; 37:631-636.
134. Comparison of Blood Oxygenation and Cerebral Blood Flow Effects in fMRI: Estimation of Relative Oxygen Consumption Change. Kim S-G, Ugurbil K *Magn Reson Med* 1997; 38:59-65.
135. Evaluation of the early response in fMRI in Individual subjects using Short Stimulus Duration. Hu X, Le TH, Ugurbil K *Magn Reson Med* 1997; 37:877-884.
136. The Nature of Spatio-Temporal Changes in Cerebral Hemodynamics as Manifested in Functional Magnetic Resonance Imaging. Mitra PP, Ogawa S, Hu X, Ugurbil K *Magn Reson Med* 1997; 37:511-518.
137. Functional Magnetic Resonance Imaging of the Human Brain. Kim S-G, Ugurbil K *J Neurosci* 1997; 74:229-243.
138. Ocular Dominance in Human V1 Demonstrated by Functional Magnetic Resonance Imaging. Menon RS, Ogawa S, Ugurbil K *J Neurophysiol* 1997; 77:2780-2787.
139. Experimental Determination of the BOLD Field Dependence in Vessels and Tissue. Gati JS, Menon RS Ugurbil K Rutt B *Magn Reson Med* 1997;38:296-302.
140. Myocardial Perfusion Reserve: Assessment with Multisection, Quantitative, First-Pass MR Imaging. Wilke N, Jerosch-Herold M, Wang Y, Huang Y, Christensen BV, Stillman AE, Ugurbil K, McDonald K, Wilson RF *Radiology* 1997; 204:373-384.
141. Determination of Deoxyhemoglobin Changes during Graded Myocardial Ischemia: An *in Vivo* ^{1}H NMR Spectroscopy Study. Chen W, Zhang J, Eijglelshoven MHJ, Zhang Y, Zhu X-H, Wang C, Cho Y, Merkle H, Ugurbil K *Magn Reson Med* 1997; 38:193-197.
142. Imaging H_2 ^{17}O Distribution in a Phantom and Measurement of Metabolically Produced H_2 ^{17}O in Live Mice by Proton NMR. Ronen I, Lee J-H, Merkle H, Ugurbil K, Navon G *NMR in Biomed* 1997, 10:333-340.
143. Does the Reduction of Myocardial High Energy Phosphate Levels at High Workstates Represent Demand Ischemia? Zhang J, Murakami Y, Zhang Y, Cho YK, Ye Y, Gong G, Bache RJ, From AHL, Ugurbil K *JCI* 1997, in press
144. Functional Activation in Motor Cortex Reflects the Direction and the Degree of Handedness. Dassonville P, Zhu X-H, Ugurbil K, Kim S-G, Ashe *J Proc Natl Acad Sci, USA* 1997; 94:14105-14018.
145. Time-Resolved fMRI of Mental Rotation. Richter W, Ugurbil K, Georgopoulos AP, Kim S-G *NeuroReport* 1998; 8:3697-3702.
146. Mapping of Lateral Geniculate Nucleus Activation during Visual Stimulation in Human Brain using fMRI. Chen W, Kato T, Zhu X-H, Strupp J, Ogawa S, Ugurbil K *Magn Reson Med* 1998; 39:89-96.
147. Functional Magnetic Resonance Imaging of Motor, Sensory, and Posterior Parietal Cortical Areas during Performance of Sequential Typing Movements. Gordon AM, Lee J-H, Flament D, Ugubil K, Ebner TJ *Exper Brain Res* 1998; 121:153-166.
148. Activation of Visuomotor Systems during Visually Guided Movements: A Functional MRI Study.

Ellermann JM, Siegal JD, Strupp JP, Ebner TJ, Ugurbil K *JMR* 1998; 131:272-285.

149. Spatial and Temporal Differentiation of fMRI BOLD Response in Primary Visual Cortex of Human Brain during Sustained Visual Simulation. Chen W, Zhu X-H, Andersen P, Ugurbil K *Magn Reson Med* 1998; 39:520-527.
150. Phosphorus Nuclear Magnetic Resonance Spectroscopy in the Hypertrophied Left Ventricle In: *Current and Future Applications of Magnetic Resonance in Cardiovascular Diseases*: Bache RJ, Zhang J, From AHL, Ugurbil K; pp 459-473 Eds (Higgins CB, Ingwall J, Pohost GM) Futura Publishing Company Armonk, NY 1998. (*Book Chapter*)
151. On the Characteristics of Functional Magnetic Resonance of the Brain. Ogawa S, Menon RS, Kim S-G, Ugurbil K. *Ann Rev Biophys Struct* 1998; 278:447-474.
152. MR Imaging Contrast Enhancement Based on Intermolecular Zero Quantum Coherences. Warren W, Ahn S, Mescher M, Garwood M, Ugurbil K, Richter W, Rizi RR, Hopkins J, Leigh JS *Science* 1998; 281:247-251.
153. Human Hippocampal Long-Term Sustained Response during Word Memory Processing. Kato T, Erhard P, Takayama Y, Strupp JP, Le TH, Ogawa S, Ugurbil K *NeuroReport* 1998; 9:1041-1047.
154. Functional Magnetic Tesonance Imaging of Mental Totation and Memory Scanning: A Multidimensional Scaling Analysis of Brain Activation Patterns. Tagaris GA, Richter W, Kim S-G, Pellizzer G, Andersen P, Ugurbil K, Georgopoulos AP *Brain Res Brain Res Rev* 1998; 26:106-112.
155. Detecting Natural Sbundance Carbon Signal of NAA Metabolite within 12- cm3 Localized Volume of Human Brain using 1H-13C NMR Spectroscopy. Chen W, Adriany G, Zhu X-H, Gruetter R, Ugurbil K *Magn Reson Med* 1998; 40:180-184.
156. Steady-state Cerebral Glucose Foncentrations and Transport in the Human Brain. Gruetter R, Ugurbil K, Seaquist ER *J Neurochem* 1998; 70:397-408.
157. Simultaneous Oxygenation and Perfusion Imaging Study of Functional Activity in Primary Visual Cortex at Different Visual Stimulation Frequency: Quantitative Correlation between BOLD and CBF changes. Zhu X-H, Kim S-G, Andersen P, Ogawa S, Ugurbil K, Chen *W Magn Reson Med* 1998; 40:703-711.
158. Effects of Movement Predictability on Cortical Motor Activation. Dassonville P, Lewis S, Zhu X-H, Ugurbil K, Kim S-G, Ashe J *Neurosci Res* 1998; 32:65-74.
159. Localized In Vivo ^{13C}-NMR of Glutamate Metabolism in the Human Brain: Initial Results at 4 Tesla. Gruetter R, Seaquist ER, Kim S, Ugurbil K *Dev Neurosci* 1998; 20:380-388.
160. Human Primary Visual Cortex and Lateral Geniculate Nucleus Activation during Visual Imagery. Chen W, Kato T. Zhu X-H, Ogawa S, Tank, DW, Ugurbil K *J NeuroReport* 1998; 9:3669-3674.
161. Resolution improvements in *In Vivo* ^{1}H NMR sSpectra with Increased Magnetic Field Strength. Gruetter R, Weisdorf SA, Rajanayagan V, Terpstra M, Merkle H, Truwit CL, Garwood M, Nyberg SL, Ugurbil K *J Magn Reson* 1998; 125:260-264.
162. Localized in vivo ^{1}H NMR Detection of Neurotransmitter Labeling in Rat Brain during Infusion of [1-^{13}C]D-glucose. Pfeuffer J, Tkac I, Choi IY, Merkle H, Ugurbil K, Garwood M, Gruetter R *Magn Reson Med* 1999; 6:1077-1083.
163. In Vitro and In Vivo Studies of 1H NMR Visibility to Detect Deoxyhemoglobin and Deoxymyoglobin Signals in Myocardium. Chen W, Cho Y, Merkle H, Ye Y, Zhang Y, Gong G, Zhang J, Ugurbil K *Magn Reson Med* 1999; 42:1-5.
164. Retinotopic Mapping of Lateral Geniculate Nucleus in Humans using Functional Magnetic Resonance Imaging. Chen W, Zhu X-H, Thulborn KR, Ugurbil K *Proc Natl Acad Sci USA* 1999; 96:2430-2434.
165. High Spatial Resolution Functional Magnetic Resonance Imaging at Very- High-Magnetic Field.

Chen W, Ugurbil K *Top Magn Reson Imaging* 1999; 10:63-788.

166. Further Evaluation of the Initial Negative Response in Functional Magnetic Resonance Imaging Yacoub E, Le TH, Ugurbil K, Hu X *Magn Reson Med* 1999; 41:436-441.
167. Myocardial Oxygenation during High Workstates in Hearts with Post-Infarction Remodeling. Murakami Y, Zhang Y, Cho YK, Mansoor AM, Chung JK, Chu C, Francis G, Ugurbil K, Bache RJ, From AHL, Jerosch-Herold M, Wilke N, Zhang J *Circulation* 1999; 99:942-948.
168. Myocardial Oxygenation at High Workstates in Hearts with Left Ventricular Hypertrophy. Bache RJ, Zhang J, Murakami, Y, Zhang Y, Cho YK, Merkle H, Gong G, From AHL, Ugurbil K *Cardiovascular Research* 1999; 42:616-626.
169. Functional Mapping in the Human Brain using High Magnetic Fields. Ugurbil K, Hu X, Chen W, Zhu X-H, Kim S-G, Georgopoulos AP *Phil Trans Soc Lond B* 1999; 354:1195-1213.
170. Neural Correlates of Visual Form and Visual Spatial Processing. Shen L, Hu X, Yacoub E, Ugurbil K *Human Brain Mapp* 1999; 8:60-71.
171. Noninvasive Measurement of [1-(13)C]glycogen Concentrations and Metabolism in Rat BrainIin Vivo. Choi IY, Tkac I, Ugurbil K, Gruetter R *J Neurochem* 1999; 73:1300-1308.
172. Transmural Metabolic Heterogeneity at High Vardiac Work States. Gong G, Ugurbil K, Zhang J *Am J Physiol* 1999; 277:H236-H242.
173. Diffusion-weighted Spin-echo fMRI at 9.4T: Microvascular/tissue Contribution to BOLD Signal cChanges. Lee SP, Silva AC, Ugurbil K, Kim SG *Magn Reson Med* 1999; 42:919-928.
174. Oxygen Delivery does not Limit Cardiac Performance during High Work States. Zhang J, Murakami Y, Zhang Y, Cho YK, Ye Y, Gong G, Bache RJ, Ugurbil K, From AHL *Am J Physiol* 1999; H50-H57.
175. Imaging Brain Activity using Nuclear sSpins. Ugurbil K, Ogawa S, Kim S-G, Chen W, Zhu X-H in: Magnetic Resonance and Brain Function: Approaches from Physics (ed) Maraviglia B. IOS Press; Amsterdam, Oxford, Tokyo, Washington DC 1999; 261-310.
176. Functional MRI with Intermolecular Multiple Quantum Coherences. Wolfgang Richter, Marlene Richter, Warren S. Warren, Hellmut Merkle, Peter Andersen, Gregor Adriany, and Kamil Ugurbil. *Magn Reson Imaging* 2000; 18:489-494.
177. Motor Area Activity during Mental Rotation studied by Time-Resolved Single-trial fMRI. Richter W, Somorjai R, Summers R, Jarmasz M, Menon RS, Gati JS, Georgopoulos AP, Tegeler C, Ugurbil K, Kim S-G *J Cogn Neurosci* 2000; 12:310-32.
178. A Functional Magnetic Resonance Imaging Study of the Role of Left Posterior Superior Temporal Gyrus in Speech Production: Implications for the Explanation of Conduction Aphasia. Hickok G, Erhard P, Kassubek J, Helms-Tillery AK, Naeve-Velguth S, Strupp JP, Strick P, Ugurbil K *Neurosci Lett* 2000; 287:156-160.
179. Spatio-temporal Dynamics of the BOLD fMRI Signals: Toward Mapping Submillimeter Cortical Columns using the Early Negative Response. Duong TQ, Kim D-S, Ugurbil K, Kim S-G *Magn Reson Med* 2000; 44:231-242.
180. Subchronic In Vivo Effects of a High Static Magnetic Field (9.4T) in Rats. High WB, Sikora J, Ugurbil K, Garwood M *J Magn Reson Imaging* 2000; 12:122-139.
181. Magnetic Resonance Studies of Brain Function and Neurochemistry. Ugurbil K, Adriany G, Andersen P, Chen W, Gruetter R, Hu X, Merkle H, Kim D-S, Kim S-G, Strupp J, Zhu X-H, Ogawa S *Annu Rev Biomed Eng* 2000; 2:633-660.
182. Effect of Acute Hyperglycemia on Visual Cortical Activation as Measured by Gunctional MRI. Gruetter R, Ugurbil K, Seaquist ER *J Neurosci Res* 2000; 62:279-285.
183. An Spproach to Probe some Neural Systems Interaction by Functional MRI at Neural Time Scale Down to Milliseconds. Ogawa S, Lee TM, Stepnoski R, Chen W, Zhu X-H, Ugurbil K *Proc Natl Acad Sci USA* 2000; 97:11026-11031.

184. Functional Suppression of Long-Term Sustained Response in the Human Hippocampal Formation due to Memory Distraction. Kato T, Ogawa S, Ugurbil K *Neurosci Lett* 2000; 291:33-36.
185. Myocardial Oxygenation and High-energy Phosphate Levels during Graded Coronary Hhypoperfusion. Zhang J, Ugurbil K, From AH, Bache RJ *AM J Physiol Heart Circ Physiol*. 2001; 280:pH318-326.
186. A Mathematical Model of Compartmentalized Neurotransmitter Metabolism in the Human Brain. Gruetter R, Seaquist ER, Ugurbil K *Am J Physsiol Endocrinol Metab* 2001; 281:E100-112.
187. 17O Relaxation Time and NMR Sensitivity of Cerebral Water and their Field Dependence. Zhu XH, Merkle H, Kwag JH, Ugurbil K, Chen W *Magn Reson Med* 2001; 4:588-594.
188. Study of Tricarboxylic Acid Cycle Flux changes in Human Visual Cortex during Hemifield Visual Stimulation using Tricarboxylic Acid Cycle Flux changes in Human Visual Cortex during Hemifield Visual Stimulation using (1)H-[(13)C] MRS and fMRI. Chen W, Zhu X-H, Gruetter R, Seaquist ER, Adriany G, Ugurbil K *Magn Reson Med* 2001; 45:349-355.
189. Functional Magnetic Resonance Imaging of Visual Object Construction and Shape Discrimination: Relations among Task, Hemispheric Lateralization, and Gender. Georgopoulos AP, Whang K, Georgopoulos MA, Tagaris GA, Amirikian B, Richter W, Kim S-G, Ugurbil K *J Cogn Neurosci* 2001; 13:72-89.
190. The Effect of Stimulus-Response Compatibility on Cortical Motor Activation. Dassonville P, Lewis SM, Zhu X-H, Ugurbil K, Kim S-G, Ashe J *NeuroImage* 2001; 13:1-14.
191. Noninvasive Measurements of Transmural Myocardial Metabolites using 3-D (31) P NMR Spectroscopy. Cho YK, Merkle H, Zhang J, Tsekos N, Bache R, Ugurbil K. *Am J Physiol Heart Circ Physiol* 2001; 280:H489-497.
192. Imaging Brain Function in Humans at 7 Tesla. Yacoub, E., Shmuel, A Pfeuffer J, Van de Moortele P-F, Adriany G, Andersen P, Vaughan JT, Merkle H, Ugurbil K, Hu X: *Magn Reson Med* 2001; 45(4): 588-94.
193. 7T vs. 4T: RF Power, Homogeneity, and Signal-to-Noise Comparison in Head Images. Vaughan JT, Garwood M, Collins CM, Liu W, DelaBarre L, Adriany G, Andersen P, Merkle H, Goebel R, Smith MB, Ugurbil K:. *Magn Reson Med* 2001; 46(1): 24-30.
194. Functional Neuroarchitecture and Neurochemistry at High Magnetic Fields. Kamil Ugurbil, Seiji Ogawa; *Human Frontier Science Program* Workshop XI Neuroenergetics: Relevance for Functional Brain Imaging pp 89-107.
195. Respiration Induced B Fluctuations in the Human Brain at 7 Tesla and its Spatial Distribution. Van de Moortele P-F, Pfeuffer J, Glover G, Ugurbil K, Hu X, Magn Reson Med 2002; 47:888-895.
196. Zoomed Functional Imaging in the Human Brain at 7 Tesla with Simultaneously High Spatial and Temporal Resolution. Pfeuffer J, Van de Moortele P-F, Yacoub E, Adriany G, Andersen P, Merkle H, Garwood M, Ugurbil K, Hu X. Neuroimage 2002; 17:272-286.
197. Perfusion-based High-resolution Functional Imaging in the Human Brain at 7 Tesla. Pfeuffer J, Adriany G, Shmuel A, Yacoub E, Van de Moortele P-F, Hu X, Ugurbil K. Magn Reson Med 2002; 47:903-911.
198. Different Excitation and Reception Distributions with a Single-Loop Transmit-Receive Surface Coil near a Head-Sized Spherical Phantom at 300 MHz. Collins CM, Yang QX, Wang JH, Zhang X, Liu H, Michaeli S, Zhu X-H, Adriany G, Vaughan JT, Andersen P, Merkle H, Ugurbil K, Smith MB, Chen W. Magn Reson Med 2002; 47:1026-1028.
199. Analysis of Wave Behavior in Lossy Dielectric Samples at High Field. Yang QX, Wang JH, Zhang X, Collins CM, Smith MB, Liu H, Zhu X-H, Vaughan JT, Ugurbil K, Chen W. Magn Reson Med 2002; 47:982-989.

200. A Detunable Transverse Electromagnetic (TEM) Volume Coil for High-Field NMR. Vaughan JT, Adriany G, Garwood M, Yacoub E, Duong TQ. Magn Reson Med 2002; 47:990-1000.
201. Analysis of fMRI and Finger Tracking Training in Subjects with Chronic Stroke. Carey J, Kimberley TJ, Lewis SM, Auerbach EJ, Dorsey L, Rundquist P, Ugurbil K. Brain 2002; 125:773-788.
202. Functional Magnetic Resonance Imaging of the Retina. Duong TQ, Ngan SC, Ugurbil K, Kim SG. Invest Ophthalml Vis Sci 2002; 43:1176-1181.
203. Correction of Physiologically Induced Global Off-resonance Effects in Dynamic Echo-planar and Spiral Functional Imaging. Pfeuffer J, Van de Moortele P-F, Ugurbil K, Glover GH. Magn Reson Med 2002; 47:344-353.
204. In Vivo (1)H(2)0 T†(2) Measurement in the Human Occipital Lobe at 4T and 7T by Carr-Purcell MRI: Detection of Microscopic Susceptibility Contrast. Bartha R, Michaeli S, Merkle H, Adriany G, Andersen P, Chen W, Ugurbil K, Garwood M. Magn Reson Med 2002; 47:742-750.
205. Cerebellum Activation Associated with Performance Change but Not Motor Learning. Seidler RD, Purushothan A, Kim S-G, Ugurbil K, Willingham D, Ashe J. Science 2002; 296:2043-2046.
206. Effect of Basal Conditions on the Magnitude and Dynamics of the BOLD fMRI Response. Cohen ER, Ugurbil K, Kim S-G. J Cereb Blood Flow and Metab 2002; 22:1042-1053.
207. Functional Mapping in Cat Visual Cortex using High Magnetic Fields. Kim D-S, Duong TQ, Ugurbil K, Kim S-G. In: The Cat Primary Visual Cortex. Eds: Payne B, Peters A 2002.
208. Tagging of the Magnetization with the Transition Zones of 360-degree Rotations generated by a Tandem of Two Adiabatic DANTE Inversion Sequences. Tsekos N, Garwood M, Ugurbil K. Magn Reson Med 2002; 156:187.
209. Proton T2† Relaxation Study of Water, N-acetylaspartate, and Creatine in Human Brain using Hahn and Carr-Purcell Spin Echoes at 4T and 7T. Michaeli S, Garwood M, Zhu X-H, DelaBarre L, Andersen P, Adriany G, Merkle H, Ugurbil K, Chen W. Magn Reson Med 2002; 47:629-633.
210. High-Resolution, Spin-Echo BOLD, and CBF fMRI at 4 and 7 T. Duong TQ, Yacoub E, Adriany G, Hu X, Ugurbil K, Vaughan J, Merkle H, Kim S-G. Magn Reson Med 2002; 48:589-593.
211. Development of (17)O NMR Approach for Fast Imaging of Cerebral Metabolic Rate of Oxygen in Rat Brain at High Field. Zhu X-H, Zhang Y, Tian RX, Lei H, Zhang N, Zhang X, Merkle H, Ugurbil K, Chen W. PNAS 2002; 99:13194-13199.
212. Polarization of the RF Field in a Human Head at High Field: A Study with a Quadrature Surface Coil at 7.0T. Wang J, Yang QX, Zhang X, Collins CM, Smith MB, Zhu X-H, Adriany G, Ugurbil K, Chen W. Magn Reson Med 2002; 48:362-369.
213. Ultra High-Resolution fMRI in Monkeys with Implanted RF Coils. Logothetis N, Merkle H, Augath M, Trinath T, Ugurbil K. Neuron 2002; 35:227-242.
214. Direct In Vvivo Measurement of Human Cerebral GABA Concentration using MEGA-editing at 7 Tesla. Terpstra M, Ugurbil K, Gruetter R. Magn Reson Med 2002; 47:1009-1012.
215. Microvascular BOLD contribution at 4 and 7 T in the human brain: gradient-echo and spin-echo fMRI with suppression of blood effects. Duong TQ, Yacoub E, Adriany G, Hu X, Ugurbil K, Kim SG. Magn Reson Med 2003;49(6):1019-1027.
216. Mirror-symmetric tonotopic maps in human primary auditory cortex. Formisano E, Kim DS, Di Salle F, van de Moortele PF, Ugurbil K, Goebel R. Neuron 2003;40(4):859-869.
217. Oxidative capacity in failing hearts. Gong G, Liu J, Liang P, Guo T, Hu Q, Ochiai K, Hou M, Ye Y, Wu X, Mansoor A, From AH, Ugurbil K, Bache RJ, Zhang J. Am J Physiol Heart Circ Physiol 2003;285(2):H541-548.

218. In vivo mapping of functional domains and axonal connectivity in cat visual cortex using magnetic resonance imaging. Kim DS, Kim M, Ronen I, Formisano E, Kim KH, Ugurbil K, Mori S, Goebel R. Magn Reson Imaging 2003;21(10):1131-1140.
219. High-resolution functional magnetic resonance imaging of the animal brain. Kim SG, Ugurbil K. Methods 2003;30(1):28-41.
220. Measurement of unidirectional Pi to ATP flux in human visual cortex at 7 T by using in vivo 31P magnetic resonance spectroscopy. Lei H, Ugurbil K, Chen W. Proc Natl Acad Sci U S A 2003;100(24):14409-14414.
221. ^{31}P-^{31}P coupling and ATP T_2 measurement in human brain at 7T. Lei H, Zhu XH, Zhang XL, Qiao H, Ugurbil K, Chen W. Magn Reson Med 2003;50(3):656-658.
222. In vivo 31P magnetic resonance spectroscopy of human brain at 7 T: an initial experience. Lei H, Zhu XH, Zhang XL, Ugurbil K, Chen W. Magn Reson Med 2003;49(2):199-205.
223. Cerebellar activation during copying geometrical shapes. Lewis SM, Jerde TA, Tzagarakis C, Georgopoulos MA, Tsekos N, Amirikian B, Kim SG, Ugurbil K, Georgopoulos AP. J Neurophysiol 2003;90(6):3874-3887.
224. Retinotopic mapping in cat visual cortex using high-field functional magnetic resonance imaging. Olman C, Ronen I, Ugurbil K, Kim DS. J Neurosci Methods 2003;131(1-2):161-170.
225. Spatial dependence of the nonlinear BOLD response at short stimulus duration. Pfeuffer J, McCullough JC, Van de Moortele PF, Ugurbil K, Hu X. Neuroimage 2003;18(4):990-1000.
226. Conventional DTI vs. slow and fast diffusion tensors in cat visual cortex. Ronen I, Kim KH, Garwood M, Ugurbil K, Kim DS. Magn Reson Med 2003;49(5):785-790.
227. Functional activation using apparent diffusion coefficient-dependent contrast allows better spatial localization to the neuronal activity: evidence using diffusion tensor imaging and fiber tracking. Song AW, Harshbarger T, Li T, Kim KH, Ugurbil K, Mori S, Kim DS. Neuroimage 2003;20(2):955-961.
228. Ultrahigh field magnetic resonance imaging and spectroscopy. Ugurbil K, Adriany G, Andersen P, Chen W, Garwood M, Gruetter R, Henry PG, Kim SG, Lieu H, Tkac I, Vaughan T, Van De Moortele PF, Yacoub E, Zhu XH. Magn Reson Imaging 2003;21(10):1263-1281.
229. How accurate is magnetic resonance imaging of brain function? Ugurbil K, Toth L, Kim DS. Trends Neurosci 2003;26(2):108-114.
230. Spin-echo fMRI in humans using high spatial resolutions and high magnetic fields. Yacoub E, Duong TQ, Van De Moortele PF, Lindquist M, Adriany G, Kim SG, Ugurbil K, Hu X. Magn Reson Med 2003;49(4):655-664.
231. Myocardial oxygenation and high-energy phosphate levels during KATP channel blockade. Zhang J, From AH, Ugurbil K, Bache RJ. Am J Physiol Heart Circ Physiol 2003;285(4):H1420-1427.
232. A microstrip transmission line volume coil for human head MR imaging at 4T. Zhang X, Ugurbil K, Chen W. J Magn Reson 2003;161(2):242-251.
233. fMRI analysis of ankle movement tracking training in subject with stroke. Carey JR, Anderson KM, Kimberley TJ, Lewis SM, Auerbach EJ, Ugurbil K. Exp Brain Res 2004;154(3):281-290.
234. Imaging Cerebral Metabolic Rate of Oxygen Consumption ($CMRO_2$) using ^{17}O NMR Approach at Ultra-high Field. Chen W, Zhu XH, Ugurbil K. In: Shulman RG, Rothman DL, editors. Brain Energetics and Neuronal Activity. New York: John Wiley & Sons Ltd; 2004. p 125-146.
235. Hypercapnic normalization of BOLD fMRI: comparison across field strengths and pulse sequences. Cohen ER, Rostrup E, Sidaros K, Lund TE, Paulson OB, Ugurbil K, Kim SG. Neuroimage 2004;23(2):613-624.

236. Temperature and SAR calculations for a human head within volume and surface coils at 64 and 300 MHz. Collins CM, Liu W, Wang J, Gruetter R, Vaughan JT, Ugurbil K, Smith MB. J Magn Reson Imaging 2004;19(5):650-656.
237. Spatial specificity of high-resolution, spin-echo BOLD, and CBF fMRI at 7 T. Duong TQ, Yacoub E, Adriany G, Hu X, Andersen P, Vaughan T, Ugurbil K, Kim SG. Magn Reson Med 2004;51:646-647.
238. A comparison of hemodynamic and neural responses in cat visual cortex using complex stimuli. Kayser C, Kim M, Ugurbil K, Kim DS, Konig P. Cereb Cortex 2004;14(8):881-891.
239. Spatial relationship between neuronal activity and BOLD functional MRI. Kim DS, Ronen I, Olman C, Kim SG, Ugurbil K, Toth LJ. Neuroimage 2004;21(3):876-885.
240. 3-D diffusion tensor axonal tracking shows distinct SMA and pre-SMA projections to the human striatum. Lehericy S, Ducros M, Krainik A, Francois C, Van de Moortele PF, Ugurbil K, Kim DS. Cereb Cortex 2004;14(12):1302-1309.
241. Diffusion tensor fiber tracking shows distinct corticostriatal circuits in humans. Lehericy S, Ducros M, Van de Moortele PF, Francois C, Thivard L, Poupon C, Swindale N, Ugurbil K, Kim DS. Ann Neurol 2004;55(4):522-529.
242. Transverse relaxation in the rotating frame induced by chemical exchange. Michaeli S, Sorce DJ, Idiyatullin D, Ugurbil K, Garwood M. J Magn Reson 2004;169(2):293-299.
243. BOLD fMRI and psychophysical measurements of contrast response to broadband images. Olman CA, Ugurbil K, Schrater P, Kersten D. Vision Res 2004;44(7):669-683.
244. Efficient high-frequency body coil for high-field MRI. Vaughan JT, Adriany G, Snyder CJ, Tian J, Thiel T, Bolinger L, Liu H, DelaBarre L, Ugurbil K. Magn Reson Med 2004;52(4):851-859.
245. Parallel imaging performance as a function of field strength--an experimental investigation using electrodynamic scaling. Wiesinger F, Van de Moortele PF, Adriany G, De Zanche N, Ugurbil K, Pruessmann KP. Magn Reson Med 2004;52(5):953-964.
246. Phantom design method for high-field MRI human systems. Yang QX, Wang J, Collins CM, Smith MB, Zhang X, Ugurbil K, Chen W. Magn Reson Med 2004;52(5):1016-1020.
247. Simplified methods for calculating cerebral metabolic rate of oxygen based on 17O magnetic resonance spectroscopic imaging measurement during a short 17O2 inhalation. Zhang N, Zhu XH, Lei H, Ugurbil K, Chen W. J Cereb Blood Flow Metab 2004;24(8):840-848.
248. Transmit and receive transmission line arrays for 7 Tesla parallel imaging. Adriany G, Van de Moortele PF, Wiesinger F, Moeller S, Strupp JP, Andersen P, Snyder C, Zhang X, Chen W, Pruessmann KP, Boesiger P, Vaughan T, Ugurbil K. Magn Reson Med 2005;53(2):434-445.
249. Mental maze solving: directional fMRI tuning and population coding in the superior parietal lobule. Gourtzelidis P, Tzagarakis C, Lewis SM, Crowe DA, Auerbach E, Jerde TA, Ugurbil K, Georgopoulos AP. Exp Brain Res 2005;165(3):273-282.
250. Distinct basal ganglia territories are engaged in early and advanced motor sequence learning. Lehericy S, Benali H, Van de Moortele PF, Pelegrini-Issac M, Waechter T, Ugurbil K, Doyon J. Proc Natl Acad Sci U S A 2005;102(35):12566-12571.
251. Logarithmic transformation for high-field BOLD fMRI data. Lewis SM, Jerde TA, Tzagarakis C, Gourtzelidis P, Georgopoulos MA, Tsekos N, Amirikian B, Kim SG, Ugurbil K, Georgopoulos AP. Exp Brain Res 2005;165(4):447-453.
252. Monitoring disease progression in transgenic mouse models of Alzheimer's disease with proton magnetic resonance spectroscopy. Marjanska M, Curran GL, Wengenack TM, Henry PG, Bliss RL, Poduslo JF, Jack CR, Jr., Ugurbil K, Garwood M. Proc Natl Acad Sci U S A 2005;102(33):11906-11910.

253. Uncovering hidden in vivo resonances using editing based on localized TOCSY. Marjanska M, Henry PG, Bolan PJ, Vaughan B, Seaquist ER, Gruetter R, Ugurbil K, Garwood M. Magn Reson Med 2005;53(4):783-789.
254. Exchange-influenced T2rho contrast in human brain images measured with adiabatic radio frequency pulses. Michaeli S, Grohn H, Grohn O, Sorce DJ, Kauppinen R, Springer CS, Jr., Ugurbil K, Garwood M. Magn Reson Med 2005;53(4):823-829.
255. Detection of intracellular lactate with localized diffusion {1H-13C}-spectroscopy in rat glioma in vivo. Pfeuffer J, Lin JC, Delabarre L, Ugurbil K, Garwood M. J Magn Reson 2005;177(1):129-138.
256. How does DWI correlate with white matter structures? Ronen I, Ugurbil K, Kim DS. Magn Reson Med 2005;54(2):317-323.
257. Neural correlates of encoding and expression in implicit sequence learning. Seidler RD, Purushotham A, Kim SG, Ugurbil K, Willingham D, Ashe J. Exp Brain Res 2005;165(1):114-124.
258. Validation of glutathione quantitation from STEAM spectra against edited 1H NMR spectroscopy at 4T: application to schizophrenia. Terpstra M, Vaughan TJ, Ugurbil K, Lim KO, Schulz SC, Gruetter R. Magma 2005;18(5):276-282.
259. B(1) destructive interferences and spatial phase patterns at 7 T with a head transceiver array coil. Van de Moortele PF, Akgun C, Adriany G, Moeller S, Ritter J, Collins CM, Smith MB, Vaughan JT, Ugurbil K. Magn Reson Med 2005;54(6):1503-1518.
260. Signal and noise characteristics of Hahn SE and GE BOLD fMRI at 7 T in humans. Yacoub E, Van De Moortele PF, Shmuel A, Ugurbil K. Neuroimage 2005;24(3):738-750.
261. Nitric oxide regulation of myocardial O2 consumption and HEP metabolism. Zhang J, Gong G, Ye Y, Guo T, Mansoor A, Hu Q, Ochiai K, Liu J, Wang X, Cheng Y, Iverson N, Lee J, From AH, Ugurbil K, Bache RJ. Am J Physiol Heart Circ Physiol 2005;288(1):H310-316.
262. An inverted-microstrip resonator for human head proton MR imaging at 7 tesla. Zhang X, Ugurbil K, Sainati R, Chen W. IEEE Trans Biomed Eng 2005;52(3):495-504.
263. In vivo 17O NMR approaches for brain study at high field. Zhu XH, Zhang N, Zhang Y, Zhang X, Ugurbil K, Chen W. NMR Biomed 2005;18(2):83-103.
264. In vivo micro-MRI of intracortical neurovasculature. Bolan, P.J., Yacoub, E., Garwood, M., Ugurbil, K., and Harel, N. Neuroimage, 2006. 32(1): p. 62-9.
265. Investigating brain metabolism at high fields using localized 13C NMR spectroscopy without 1H decoupling. Deelchand, D.K., Ugurbil, K., and Henry, P.G. Magn Reson Med, 2006. 55(2): p. 279-86.
266. Current and Future Trends in Magnetic Resonance Imaging (MRI). Vaughan JT, Vaughan JT, Snyder C, Delabarre L, T. J, Akgun C, Ugurbil K, Olson C, Gopinath A. IEEE Trans Biomed Eng 2006;June:211-212.
267. Highest Field Human Imaging. Vaughan JT, DelaBarre L, Snyder C, Tian J, Bolan PJ, Garwood M, Adriany G, Strupp J, Andersen P, Van De Moortele PF, Ugurbil K. IEEE Trans Biomed Eng 2006.
268. Combined imaging-histological study of cortical laminar specificity of fMRI signals. Harel, N., Lin, J., Moeller, S., Ugurbil, K., and Yacoub, E. Neuroimage, 2006. 29(3): p. 879-87.
269. Frontiers of brain mapping using MRI. Harel, N., Ugurbil, K., Uludag, K., and Yacoub, E. J Magn Reson Imaging, 2006. 23(6): p. 945-57.
270. In vivo 13C NMR spectroscopy and metabolic modeling in the brain: a practical perspective. Henry, P.G., Adriany, G., Deelchand, D., Gruetter, R., Marjanska, M., Oz, G., Seaquist, E.R., Shestov, A., and Ugurbil, K. Magn Reson Imaging, 2006. 24(4): p. 527-39.

271. Proton-observed carbon-edited NMR spectroscopy in strongly coupled second-order spin systems. Henry, P.G., Marjanska, M., Walls, J.D., Valette, J., Gruetter, R., and Ugurbil, K. Magn Reson Med, 2006. 55(2): p. 250-7.
272. Anatomical correlates of the functional organization in the human occipitotemporal cortex. Kim, M., Ducros, M., Carlson, T., Ronen, I., He, S., Ugurbil, K., and Kim, D.S. Magn Reson Imaging, 2006. 24(5): p. 583-90.
273. Spatial resolution dependence of DTI tractography in human occipito-callosal region. Kim, M., Ronen, I., Ugurbil, K., and Kim, D.S. Neuroimage, 2006. 32(3): p. 1243-9.
274. Motor control in basal ganglia circuits using fMRI and brain atlas approaches. Lehericy, S., Bardinet, E., Tremblay, L., Van de Moortele, P.F., Pochon, J.B., Dormont, D., Kim, D.S., Yelnik, J., and Ugurbil, K. Cereb Cortex, 2006. 16(2): p. 149-61.
275. Sensitivity of single-voxel 1H-MRS in investigating the metabolism of the activated human visual cortex at 7 T. Mangia, S., Tkac, I., Gruetter, R., Van De Moortele, P.F., Giove, F., Maraviglia, B., and Ugurbil, K. Magn Reson Imaging, 2006. 24(4): p. 343-8.
276. Sustained neuronal activation raises oxidative metabolism to a new steady-state level: evidence from (1)H NMR spectroscopy in the human visual cortex. Mangia, S., Tkac, I., Gruetter, R., Van de Moortele, P.F., Maraviglia, B., and Ugurbil, K. J Cereb Blood Flow Metab, 2006.
277. Assessment of brain iron and neuronal integrity in patients with Parkinson's disease using novel MRI contrasts. Michaeli, S., Oz, G., Sorce, D.J., Garwood, M., Ugurbil, K., Majestic, S., and Tuite, P. Mov Disord, 2006. Online Pub ahead of publication (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=17149719).
278. T1rho MRI contrast in the human brain: modulation of the longitudinal rotating frame relaxation shutter-speed during an adiabatic RF pulse. Michaeli, S., Sorce, D.J., Springer, C.S., Jr., Ugurbil, K., and Garwood, M. J Magn Reson, 2006. 181(1): p. 135-47.
279. A new class of Gd-based DO3A-ethylamine-derived targeted contrast agents for MR and optical imaging. Mishra, A., Pfeuffer, J., Mishra, R., Engelmann, J., Mishra, A.K., Ugurbil, K., and Logothetis, N.K. Bioconjug Chem, 2006. 17(3): p. 773-80.
280. Application of parallel imaging to fMRI at 7 Tesla utilizing a high 1D reduction factor. Moeller, S., Van de Moortele, P.F., Goerke, U., Adriany, G., and Ugurbil, K. Magn Reson Med, 2006. 56(1): p. 118-29.
281. Signal-to-noise ratio and spectral linewidth improvements between 1.5 and 7 Tesla in proton echo-planar spectroscopic imaging. Otazo, R., Mueller, B., Ugurbil, K., Wald, L., and Posse, S. Magn Reson Med, 2006. 56(6): p. 1200-10.
282. Analysis of the distribution of diffusion coefficients in cat brain at 9.4 T using the inverse Laplace transformation. Ronen, I., Moeller, S., Ugurbil, K., and Kim, D.S. Magn Reson Imaging, 2006. 24(1): p. 61-8.
283. Investigation of multicomponent diffusion in cat brain using a combined MTC-DWI approach. Ronen, I., Moeller, S., Ugurbil, K., and Kim, D.S. Magn Reson Imaging, 2006. 24(4): p. 425-31.
284. High Magnetic Fields for Imaging Cerebral Morphology, Function and Biochemistry, in Biological Magnetic Resonance Ugurbil, K., Adriany, G., Akgün, C., Andersen, P., Chen, W., Garwood, M., Gruetter, R., Henry, P.-G., Marjanska, M., Moeller, S., Van de Moortele, P.-F., Prüssmann, K., Tkac, I., Vaughan, J.T., Wiesinger, F., Yacoub, E., and Zhu, X.-H. in Ultra High Field Magnetic Resonance Imaging, P.M.L. Robitaille, and Berliner, L.J., Editor. 2006, Springer: New York. p. 285-342.
285. Brain Function, Magnetic Resonance Imaging of: Ugurbil, K., Chen, W., Harel, N., Van de Moortele, P.-F., Yacoub, E., Zhu, X.H., and Uludag, K., in Wiley Encyclopedia of Biomedical Engineering, M. Akay, Editor. 2006, John Wiley & Sons, Inc: Hoboken. p. 647-668.

286. 9.4T human MRI: preliminary results. Vaughan, T., DelaBarre, L., Snyder, C., Tian, J., Akgun, C., Shrivastava, D., Liu, W., Olson, C., Adriany, G., Strupp, J., Andersen, P., Gopinath, A., van de Moortele, P.F., Garwood, M., and Ugurbil, K. Magn Reson Med, 2006. 56(6): p. 1274-82.
287. Potential and feasibility of parallel MRI at high field. Wiesinger, F., Van de Moortele, P.F., Adriany, G., De Zanche, N., Ugurbil, K., and Pruessmann, K.P. NMR Biomed, 2006. 19(3): p. 368-78.
288. The spatial dependence of the poststimulus undershoot as revealed by high-resolution BOLD- and CBV-weighted fMRI. Yacoub, E., Ugurbil, K., and Harel, N. J Cereb Blood Flow Metab, 2006. 26(5): p. 634-44.
289. Manipulation of image intensity distribution at 7.0 T: passive RF shimming and focusing with dielectric materials. Yang, Q.X., Mao, W., Wang, J., Smith, M.B., Lei, H., Zhang, X., Ugurbil, K., and Chen, W. J Magn Reson Imaging, 2006. 24(1): p. 197-202.
290. Cortical layer-dependent BOLD and CBV responses measured by spin-echo and gradient-echo fMRI: insights into hemodynamic regulation. Zhao, F., Wang, P., Hendrich, K., Ugurbil, K., and Kim, S.G. Neuroimage, 2006. 30(4): p. 1149-60.
291. Noninvasive and three-dimensional imaging of CMRO(2) in rats at 9.4 T: reproducibility test and normothermia/hypothermia comparison study. Zhu, X.H., Zhang, Y., Zhang, N., Ugurbil, K., and Chen, W. J Cereb Blood Flow Metab, 2006.
292. RASER: a new ultrafast magnetic resonance imaging method. Chamberlain, R., Park, J.Y., Corum, C., Yacoub, E., Ugurbil, K., Jack, C.R., Jr., and Garwood, M. Magn Reson Med (2007) 58, 794-799.
293. Determination of blood longitudinal relaxation time (T1) at high magnetic field strengths. Dobre, M.C., Ugurbil, K., and Marjanska, M. Magn Reson Imaging (2007) 25, 733-735.
294. Enhanced relative BOLD signal changes in T(2)-weighted stimulated echoes. Goerke, U., van de Moortele, P.F., and Ugurbil, K. Magn Reson Med (2007) 58, 754-762.
295. Sustained neuronal activation raises oxidative metabolism to a new steady-state level: evidence from 1H NMR spectroscopy in the human visual cortex. Mangia, S., Tkac, I., Gruetter, R., Van de Moortele, P.F., Maraviglia, B., and Ugurbil, K. J Cereb Blood Flow Metab (2007) 27, 1055-1063.
296. Dynamics of lactate concentration and blood oxygen level-dependent effect in the human visual cortex during repeated identical stimuli. Mangia, S., Tkac, I., Logothetis, N.K., Gruetter, R., Van de Moortele, P.F., and Ugurbil, K. J Neurosci Res (2007).
297. Assessment of brain iron and neuronal integrity in patients with Parkinson's disease using novel MRI contrasts. Michaeli, S., Oz, G., Sorce, D.J., Garwood, M., Ugurbil, K., Majestic, S., and Tuite, P. Mov Disord (2007) 22, 334-340.
298. Proton echo-planar spectroscopic imaging of J-coupled resonances in human brain at 3 and 4 Tesla. Posse, S., Otazo, R., Caprihan, A., Bustillo, J., Chen, H., Henry, P.G., Marjanska, M., Gasparovic, C., Zuo, C., Magnotta, V., Mueller, B., Mullins, P., Renshaw, P., Ugurbil, K., Lim, K.O., and Alger, J.R. Magn Reson Med (2007) 58, 236-244.
299. Magnetic field and tissue dependencies of human brain longitudinal 1H2O relaxation in vivo. Rooney, W.D., Johnson, G., Li, X., Cohen, E.R., Kim, S.G., Ugurbil, K., and Springer, C.S., Jr. Magn Reson Med (2007) 57, 308-318.
300. Insulin reduces the BOLD response but is without effect on the VEP during presentation of a visual task in humans. Seaquist, E.R., Chen, W., Benedict, L.E., Ugurbil, K., Kwag, J.H., Zhu, X.H., and Nelson, C.A. J Cereb Blood Flow Metab (2007) 27, 154-160.
301. On the reliability of (13)C metabolic modeling with two-compartment neuronal-glial models. Shestov, A.A., Valette, J., Ugurbil, K., and Henry, P.G. J Neurosci Res (2007) 85, 3294-3303.

302. Spatio-temporal point-spread function of fMRI signal in human gray matter at 7 Tesla. Shmuel, A., Yacoub, E., Chaimow, D., Logothetis, N.K., and Ugurbil, K. Neuroimage (2007) 35, 539-552.
303. Synthesis and cellular uptake of a MR contrast agent coupled to an antisense peptide nucleic acid--cell- penetrating peptide conjugate. Su, W., Mishra, R., Pfeuffer, J., Wiesmuller, K.H., Ugurbil, K., and Engelmann, J. Contrast Media Mol Imaging (2007) 2, 42-49.
304. Spectroscopic imaging with volume selection by unpaired adiabatic pi pulses: Theory and application. Valette, J., Park, J.Y., Grohn, O., Ugurbil, K., Garwood, M., and Henry, P.G. J Magn Reson (2007).
305. Robust detection of ocular dominance columns in humans using Hahn Spin Echo BOLD functional MRI at 7 Tesla. Yacoub, E., Shmuel, A., Logothetis, N., and Ugurbil, K. Neuroimage (2007) 37, 1161-1177.
306. Noninvasive and three-dimensional imaging of CMRO(2) in rats at 9.4 T: reproducibility test and normothermia/hypothermia comparison study. Zhu, X.H., Zhang, Y., Zhang, N., Ugurbil, K., and Chen, W. J Cereb Blood Flow Metab (2007) 27, 1225-1234.
307. A geometrically adjustable 16-channel transmit/receive transmission line array for improved RF efficiency and parallel imaging performance at 7 Tesla. Adriany, G., Van de Moortele, P.F., Ritter, J., Moeller, S., Auerbach, E.J., Akgun, C., Snyder, C.J., Vaughan, T., and Ugurbil, K. Magn Reson Med (2008) 59, 590-597.
308. A voxel-by-voxel parametric fMRI study of motor mental rotation: hemispheric specialization and gender differences in neural processing efficiency. Christova, P.S., Lewis, S.M., Tagaris, G.A., Ugurbil, K., and Georgopoulos, A.P. Experimental Brain Research (2008) 189, 79-90.
309. Simultaneous measurement of neuronal and glial metabolism in rat brain in vivo using co-infusion of [1,6-(13)C(2)]glucose and [1,2-(13)C(2)]acetate. Deelchand, D.K., Nelson, C., Shestov, A.A., Ugurbil, K., and Henry, P.G. J Magn Reson (2008).
310. Tightly coupled brain activity and cerebral ATP metabolic rate. Du, F., Zhu, X.H., Zhang, Y., Friedman, M., Zhang, N., Ugurbil, K., and Chen, W. Proc Natl Acad Sci U S A (2008) 105, 6409-6414.
311. (1)H MRS in the rat brain under pentobarbital anesthesia: accurate quantification of in vivo spectra in the presence of propylene glycol. Iltis, I., Marjanska, M., Du, F., Koski, D.M., Zhu, X.H., Ugurbil, K., Chen, W., and Henry, P.G. Magn Reson Med (2008) 59, 631-635.
312. H-1 MRS in the rat brain under pentobarbital anesthesia: Accurate quantification of in vivo spectra in the presence of propylene glycol. Iltis, I., Marjanska, M., Du, F., Koski, D.M., Zhu, X.H., Ugurbil, K., Chen, W., and Henry, P.G. Magnetic Resonance in Medicine (2008) 59, 631-635.
313. Ultra-high field parallel imaging of the superior parietal lobule during mental maze solving. Jerde, T.A., Lewis, S.M., Goerke, U., Gourtzelidis, P., Tzagarakis, C., Lynch, J., Moeller, S., Van de Moortele, P.F., Adriany, G., Trangle, J., Ugurbil, K., and Georgopoulos, A.P. Exp Brain Res (2008) 187, 551-561.
314. Development of an efficient cysteine rich cell penetrating peptide by structure activity studies. Jha, D., Wiesmueller, K.H., Mishra, R., Ugurbil, K., and Engelmann, J. Febs Journal (2008) 275, 221-221.
315. Altered diffusion in the frontal lobe in Parkinson disease. Karagulle Kendi, A.T., Lehericy, S., Luciana, M., Ugurbil, K., and Tuite, P. AJNR Am J Neuroradiol (2008) 29, 501-505.
316. Structural and diffusion tensor imaging of the fornix in childhood- and adolescent-onset schizophrenia. Kendi, M., Kendi, A.T., Lehericy, S., Ducros, M., Lim, K.O., Ugurbil, K., Schulz, S.C., and White, T. J Am Acad Child Adolesc Psychiatry (2008) 47, 826-832.
317. Editing through multiple bonds: threonine detection. Marjanska, M., Henry, P.G., Ugurbil, K., and Gruetter, R. Magn Reson Med (2008) 59, 245-251.

318. Local B1+ shimming for prostate imaging with transceiver arrays at 7T based on subject-dependent transmit phase measurements. Metzger, G.J., Snyder, C., Akgun, C., Vaughan, T., Ugurbil, K., and Van de Moortele, P.F. Magn Reson Med (2008) 59, 396-409.
319. Novel peptide delivering directly into the cytosol: prospective tool for intracellular targeting. Mishra, R., Jha, D., Wiesmueller, K.H., Ugurbil, K., and Engelmann, J. Febs Journal (2008) 275, 172-172.
320. On the reliability of C-13 metabolic modeling with two-compartment neuronal-glial models (vol 85, pg 3294, 2007). Shestov, A.A., Valette, J., Ugurbil, K., and Henry, P.G. Journal of Neuroscience Research (2008) 86, 2579-2579.
321. High-field fMRI unveils orientation columns in humans. Yacoub, E., Harel, N., and Ugurbil, K. Proc Natl Acad Sci U S A (2008) 105, 10607-10612.
322. Decreases in ADC observed in tissue areas during activation in the cat visual cortex at 9.4 T using high diffusion sensitization. Yacoub, E., Uludag, K., Ugurbil, K., and Harel, N. Magnetic Resonance Imaging (2008) 26, 889-896.
323. Dynamics and nonlinearities of the BOLD response at very short stimulus durations. Yesilyurt, B., Ugurbil, K., and Uludag, K. Magnetic Resonance Imaging (2008) 26, 853-862.
324. The influence of moderate hypercapnia on neural activity in the anesthetized nonhuman primate. Zappe, A.C., Uludag, K., Oeltermann, A., Ugurbil, K., and Logothetis, N.K. Cereb Cortex (2008) 18, 2666-2673.
325. Theoretical and experimental evaluation of continuous arterial spin labeling techniques. Pohmann, R., Budde, J., Auerbach, E.J., Adriany, G., and Ugurbil, K. Magn Reson Med (2009).
326. Parallel excitation in the human brain at 9.4 T counteracting k-space errors with RF pulse design. Wu, X., Vaughan, J.T., Ugurbil, K., and Van de Moortele, P.F. Magn Reson Med (2009).
327. Relationship of the BOLD signal with VEP for ultrashort duration visual stimuli (0.1 to 5 ms) in humans. Yesilyurt, B., Whittingstall, K., Ugurbil, K., Logothetis, N.K., and Uludag, K. J Cereb Blood Flow Metab (2009).
328. Cell-Penetrating Peptides and Peptide Nucleic Acid-Coupled MRI Contrast Agents: Evaluation of Cellular Delivery and Target Binding. Mishra, R., Su, W., Pohmann, R., Pfeuffer, J., Sauer, M.G., Ugurbil, K., and Engelmann, J. Bioconjug Chem (2009).
329. Neural activity-induced modulation of BOLD poststimulus undershoot independent of the positive signal. Sadaghiani, S., Ugurbil, K., and Uludag, K. Magn Reson Imaging (2009) 27, 1030-1038.
330. Dynamics of motor-related functional integration during motor sequence learning. Coynel, D., Marrelec, G., Perlbarg, V., Pelegrini-Issac, M., Van de Moortele, P.F., Ugurbil, K., Doyon, J., Benali, H., and Lehericy, S. Neuroimage49, 759-766.
331. Mechanisms underlying decoding at 7 T: Ocular dominance columns, broad structures, and macroscopic blood vessels in V1 convey information on the stimulated eye. Shmuel, A., Chaimow, D., Raddatz, G., Ugurbil, K., and Yacoub, E. Neuroimage (2009).
332. Noninvasive quantification of human brain ascorbate concentration using (1)H NMR spectroscopy at 7 T. Terpstra, M., Ugurbil, K., and Tkac, I. NMR Biomed (2009).
333. In vivo 1H NMR spectroscopy of the human brain at high magnetic fields: metabolite quantification at 4T vs. 7T. Tkac, I., Oz, G., Adriany, G., Ugurbil, K., and Gruetter, R. Magn Reson Med (2009) 62, 868-879.
334. Linearity of blood-oxygenation-level dependent signal at microvasculature. Zhang, N., Yacoub, E., Zhu, X.H., Ugurbil, K., and Chen, W. Neuroimage (2009) 48, 313-318.
335. Comparison of pulsed arterial spin labeling encoding schemes and absolute perfusion quantification. Cavusoglu, M., Pfeuffer, J., Ugurbil, K., and Uludag, K. Magn Reson Imaging (2009) 27, 1039-1045.

336. An integrative model for neuronal activity-induced signal changes for gradient and spin echo functional imaging. Uludag, K., Muller-Bierl, B., and Ugurbil, K. Neuroimage (2009) 48, 150-165.
337. The cortical site of visual suppression by transcranial magnetic stimulation. Thielscher, A., Reichenbach, A., Ugurbil, K., and Uludag, K. Cereb Cortex20, 328-338.
338. Acetate transport and utilization in the rat brain. Deelchand, D.K., Shestov, A.A., Koski, D.M., Ugurbil, K., and Henry, P.G. J Neurochem (2009) 109 Suppl 1, 46-54.
339. Neurochemical changes in the rat prefrontal cortex following acute phencyclidine treatment: an in vivo localized (1)H MRS study. Iltis, I., Koski, D.M., Eberly, L.E., Nelson, C.D., Deelchand, D.K., Valette, J., Ugurbil, K., Lim, K.O., and Henry, P.G. NMR Biomed (2009) 22, 737-744.
340. T1 weighted brain images at 7 Tesla unbiased for Proton Density, T2* contrast and RF coil receive B1 sensitivity with simultaneous vessel visualization. Van de Moortele, P.F., Auerbach, E.J., Olman, C., Yacoub, E., Ugurbil, K., and Moeller, S. Neuroimage (2009) 46, 432-446.
341. Cerebral cortical mechanisms of copying geometrical shapes: a multidimensional scaling analysis of fMRI patterns of activation. Tzagarakis, C., Jerde, T.A., Lewis, S.M., Ugurbil, K., and Georgopoulos, A.P. Exp Brain Res (2009) 194, 369-380.
342. Initial results of cardiac imaging at 7 Tesla. Snyder, C.J., DelaBarre, L., Metzger, G.J., van de Moortele, P.F., Akgun, C., Ugurbil, K., and Vaughan, J.T. Magn Reson Med (2009) 61, 517-524.
343. Whole-body imaging at 7T: preliminary results. Vaughan, J.T., Snyder, C.J., DelaBarre, L.J., Bolan, P.J., Tian, J., Bolinger, L., Adriany, G., Andersen, P., Strupp, J., and Ugurbil, K. Magn Reson Med (2009) 61, 244-248.
344. Simultaneous measurement of neuronal and glial metabolism in rat brain in vivo using co-infusion of [1,6-13C2]glucose and [1,2-13C2]acetate. Deelchand, D.K., Nelson, C., Shestov, A.A., Ugurbil, K., and Henry, P.G. J Magn Reson (2009) 196, 157-163.
345. Metabolic and hemodynamic events after changes in neuronal activity: current hypotheses, theoretical predictions and in vivo NMR experimental findings. Mangia, S., Giove, F., Tkac, I., Logothetis, N.K., Henry, P.G., Olman, C.A., Maraviglia, B., Di Salle, F., and Ugurbil, K. J Cereb Blood Flow Metab (2009) 29, 441-463.
346. Advanced In Vivo Heteronuclear MRS Approaches for Studying Brain Bioenergetics Driven by Mitochondria. Zhu, X.H., Du, F., Zhang, N., Zhang, Y., Lei, H., Zhang, X., Qiao, H., Ugurbil, K., and Chen, W. Methods Mol Biol (2009) 489, 317-357.
347. New insights into central roles of cerebral oxygen metabolism in the resting and stimulus-evoked brain. Zhu, X.H., Zhang, N., Zhang, Y., Ugurbil, K., and Chen, W. J Cereb Blood Flow Metab (2009) 29, 10-18.
348. An assessment of current brain targets for deep brain stimulation surgery with susceptibility-weighted imaging at 7 tesla. Abosch, A., Yacoub, E., Ugurbil, K., and Harel, N. Neurosurgery (2010) 67, 1745-1756; discussion 1756.
349. A 32-channel lattice transmission line array for parallel transmit and receive MRI at 7 tesla. Adriany, G., Auerbach, E.J., Snyder, C.J., Gozubuyuk, A., Moeller, S., Ritter, J., Van de Moortele, P.F., Vaughan, T., and Ugurbil, K. Magn Reson Med (2010) 63, 1478-1485.
350. Reconstruction of the orientation distribution function in single- and multiple-shell q-ball imaging within constant solid angle. Aganj, I., Lenglet, C., Sapiro, G., Yacoub, E., Ugurbil, K., and Harel, N. Magn Reson Med (2010) 64, 554-566.
351. Human imaging at 9.4 T using T(2)*-, phase-, and susceptibility-weighted contrast. Budde, J., Shajan, G., Hoffmann, J., Ugurbil, K., and Pohmann, R. Magn Reson Med (2010).
352. Modeling and analysis of mechanisms underlying fMRI-based decoding of information conveyed in cortical columns. Chaimow, D., Yacoub, E., Ugurbil, K., and Shmuel, A. Neuroimage (2010).

353. Dynamics of motor-related functional integration during motor sequence learning. Coynel, D., Marrelec, G., Perlbarg, V., Pelegrini-Issac, M., Van de Moortele, P.F., Ugurbil, K., Doyon, J., Benali, H., and Lehericy, S. Neuroimage (2010) 49, 759-766.
354. In vivo 1H NMR spectroscopy of the human brain at 9.4 T: initial results. Deelchand, D.K., Van de Moortele, P.F., Adriany, G., Iltis, I., Andersen, P., Strupp, J.P., Vaughan, J.T., Ugurbil, K., and Henry, P.G. J Magn Reson (2010) 206, 74-80.
355. Multiplexed echo planar imaging for sub-second whole brain FMRI and fast diffusion imaging. Feinberg, D.A., Moeller, S., Smith, S.M., Auerbach, E., Ramanna, S., Glasser, M.F., Miller, K.L., Ugurbil, K., and Yacoub, E. PLoS ONE (2010) 5, e15710.
356. Recent Advances in High-Resolution MR Application and Its Implications for Neurovascular Coupling Research. Harel, N., Bolan, P.J., Turner, R., Ugurbil, K., and Yacoub, E. Front Neuroenergetics (2010) 2, 130.
357. In vivo 13C spectroscopy in the rat brain using hyperpolarized [1-(13)C]pyruvate and [2-(13)C]pyruvate. Marjanska, M., Iltis, I., Shestov, A.A., Deelchand, D.K., Nelson, C., Ugurbil, K., and Henry, P.G. J Magn Reson (2010) 206, 210-218.
358. Performance of external and internal coil configurations for prostate investigations at 7 T. Metzger, G.J., van de Moortele, P.F., Akgun, C., Snyder, C.J., Moeller, S., Strupp, J., Andersen, P., Shrivastava, D., Vaughan, T., Ugurbil, K., and Adriany, G. Magn Reson Med (2010) 64, 1625-1639.
359. Multiband multislice GE-EPI at 7 tesla, with 16-fold acceleration using partial parallel imaging with application to high spatial and temporal whole-brain fMRI. Moeller, S., Yacoub, E., Olman, C.A., Auerbach, E., Strupp, J., Harel, N., and Ugurbil, K. Magn Reson Med (2010) 63, 1144-1153.
360. Retinotopic mapping with spin echo BOLD at 7T. Olman, C.A., Van de Moortele, P.F., Schumacher, J.F., Guy, J.R., Ugurbil, K., and Yacoub, E. Magn Reson Imaging (2010) 28, 1258-1269.
361. Theoretical and experimental evaluation of continuous arterial spin labeling techniques. Pohmann, R., Budde, J., Auerbach, E.J., Adriany, G., and Ugurbil, K. Magn Reson Med (2010) 63, 438-446.
362. Neurochemical changes in the developing rat hippocampus during prolonged hypoglycemia. Rao, R., Ennis, K., Long, J.D., Ugurbil, K., Gruetter, R., and Tkac, I. J Neurochem (2010) 114, 728-738.
363. Mechanisms underlying decoding at 7 T: ocular dominance columns, broad structures, and macroscopic blood vessels in V1 convey information on the stimulated eye. Shmuel, A., Chaimow, D., Raddatz, G., Ugurbil, K., and Yacoub, E. Neuroimage (2010) 49, 1957-1964.
364. Noninvasive quantification of human brain ascorbate concentration using 1H NMR spectroscopy at 7 T. Terpstra, M., Ugurbil, K., and Tkac, I. NMR Biomed (2010) 23, 227-232.
365. The cortical site of visual suppression by transcranial magnetic stimulation. Thielscher, A., Reichenbach, A., Ugurbil, K., and Uludag, K. Cereb Cortex (2010) 20, 328-338.
366. Adapted RF pulse design for SAR reduction in parallel excitation with experimental verification at 9.4T. Wu, X., Akgun, C., Vaughan, J.T., Andersen, P., Strupp, J., Ugurbil, K., and Moortele, P.F. J Magn Reson (2010).
367. Adapted RF pulse design for SAR reduction in parallel excitation with experimental verification at 9.4 T. Wu, X., Akgun, C., Vaughan, J.T., Andersen, P., Strupp, J., Ugurbil, K., and Van de Moortele, P.F. J Magn Reson (2010) 205, 161-170.
368. Parallel excitation in the human brain at 9.4 T counteracting k-space errors with RF pulse design. Wu, X., Vaughan, J.T., Ugurbil, K., and Van de Moortele, P.F. Magn Reson Med (2010) 63, 524-529.

369. Relationship of the BOLD signal with VEP for ultrashort duration visual stimuli (0.1 to 5 ms) in humans. Yesilyurt, B., Whittingstall, K., Ugurbil, K., Logothetis, N.K., and Uludag, K. J Cereb Blood Flow Metab (2010) 30, 449-458.
370. Functional MRI mapping neuronal inhibition and excitation at columnar level in human visual cortex. Zhang, N., Zhu, X.H., Yacoub, E., Ugurbil, K., and Chen, W. Exp Brain Res (2010) 204, 515-524.
371. Human imaging at 9.4 T using T(2) *-, phase-, and susceptibility-weighted contrast. Budde, J., Shajan, G., Hoffmann, J., Ugurbil, K., and Pohmann, R. Magn Reson Med (2011) 65, 544-550.
372. Modeling and analysis of mechanisms underlying fMRI-based decoding of information conveyed in cortical columns. Chaimow, D., Yacoub, E., Ugurbil, K., and Shmuel, A. Neuroimage (2011) 56, 627-642.
373. Whole brain high-resolution functional imaging at ultra high magnetic fields: An application to the analysis of resting state networks. De Martino, F., Esposito, F., van de Moortele, P.F., Harel, N., Formisano, E., Goebel, R., Ugurbil, K., and Yacoub, E. Neuroimage (2011) 57, 1031-1044.
374. Measurement of transverse relaxation times of J-coupled metabolites in the human visual cortex at 4 T. Deelchand, D.K., Henry, P.G., Ugurbil, K., and Marjanska, M. Magn Reson Med (2011).
375. Regional neurochemical profiles in the human brain measured by (1) H MRS at 7 T using local B(1) shimming. Emir, U.E., Auerbach, E.J., Van De Moortele, P.F., Marjanska, M., Ugurbil, K., Terpstra, M., Tkac, I., and Oz, G. NMR in biomedicine (2011).
376. Standard magnetic resonance-based measurements of the Pi-->ATP rate do not index the rate of oxidative phosphorylation in cardiac and skeletal muscles. From, A.H., and Ugurbil, K. American journal of physiology. Cell physiology (2011) 301, C1-11.
377. Functional magnetic resonance imaging using RASER. Goerke, U., Garwood, M., and Ugurbil, K. Neuroimage (2011) 54, 350-360.
378. Hippocampal sclerosis in temporal lobe epilepsy: findings at 7 T. Henry, T.R., Chupin, M., Lehericy, S., Strupp, J.P., Sikora, M.A., Sha, Z.Y., Ugurbil, K., and Van de Moortele, P.F. Radiology (2011) 261, 199-209.
379. Enhanced neurochemical profile of the rat brain using in vivo (1)H NMR spectroscopy at 16.4 T. Hong, S.T., Balla, D.Z., Shajan, G., Choi, C., Ugurbil, K., and Pohmann, R. Magn Reson Med (2011) 65, 28-34.
380. CyLoP-1: A Novel Cysteine-Rich Cell-Penetrating Peptide for Cytosolic Delivery of Cargoes. Jha, D., Mishra, R., Gottschalk, S., Wiesmuller, K.H., Ugurbil, K., Maier, M.E., and Engelmann, J. Bioconjugate chemistry (2011) 22, 319-328.
381. Synthesis and characterization of a cell-permeable bimodal contrast agent targeting beta-galactosidase. Keliris, A., Ziegler, T., Mishra, R., Pohmann, R., Sauer, M.G., Ugurbil, K., and Engelmann, J. Bioorg Med Chem (2011) 19, 2529-2540.
382. Contrast enhancement in TOF cerebral angiography at 7 T using saturation and MT pulses under SAR constraints: Impact of VERSE and sparse pulses. Schmitter, S., Bock, M., Johst, S., Auerbach, E.J., Ugurbil, K., and Van de Moortele, P.F. Magn Reson Med (2011).
383. Design and evaluation of an RF front-end for 9.4 T human MRI. Shajan, G., Hoffmann, J., Budde, J., Adriany, G., Ugurbil, K., and Pohmann, R. Magn Reson Med (2011) 66, 594-602.
384. Comparison between eight- and sixteen-channel TEM transceive arrays for body imaging at 7 T. Snyder, C.J., Delabarre, L., Moeller, S., Tian, J., Akgun, C., Van de Moortele, P.F., Bolan, P.J., Ugurbil, K., Vaughan, J.T., and Metzger, G.J. Magn Reson Med (2011).
385. 7 Tesla (T) human cardiovascular magnetic resonance imaging using FLASH and SSFP to assess cardiac function: validation against 1.5 T and 3 T. Suttie, J.J., Delabarre, L., Pitcher, A., van de Moortele, P.F., Dass, S., Snyder, C.J., Francis, J.M., Metzger, G.J., Weale, P., Ugurbil, K., Neubauer, S., Robson, M., and Vaughan, T. NMR in biomedicine (2011).

386. Mapping the Organization of Axis of Motion Selective Features in Human Area MT Using High-Field fMRI. Zimmermann, J., Goebel, R., De Martino, F., van de Moortele, P.F., Feinberg, D., Adriany, G., Chaimow, D., Shmuel, A., Ugurbil, K., and Yacoub, E. PLoS ONE (2011) 6, e28716.
387. Functional MRI using super-resolved spatiotemporal encoding. Ben-Eliezer, N., Goerke, U., Ugurbil, K., and Frydman, L. Magn Reson Imaging (2012) 30, 1401-1408.
388. Spin echo functional MRI in bilateral auditory cortices at 7 T: an application of B(1) shimming. De Martino, F., Schmitter, S., Moerel, M., Tian, J., Ugurbil, K., Formisano, E., Yacoub, E., and de Moortele, P.F. Neuroimage (2012) 63, 1313-1320.
389. Measurement of transverse relaxation times of J-coupled metabolites in the human visual cortex at 4 T. Deelchand, D.K., Henry, P.G., Ugurbil, K., and Marjanska, M. Magn Reson Med (2012) 67, 891-897.
390. Simultaneous bilateral hip joint imaging at 7 Tesla using fast transmit B(1) shimming methods and multichannel transmission - a feasibility study. Ellermann, J., Goerke, U., Morgan, P., Ugurbil, K., Tian, J., Schmitter, S., Vaughan, T., and Van De Moortele, P.F. NMR Biomed (2012) 25, 1202-1208.
391. Regional neurochemical profiles in the human brain measured by (1)H MRS at 7 T using local B(1) shimming. Emir, U.E., Auerbach, E.J., Van De Moortele, P.F., Marjanska, M., Ugurbil, K., Terpstra, M., Tkac, I., and Oz, G. NMR Biomed (2012) 25, 152-160.
392. In vitro and in vivo studies of (17) O NMR sensitivity at 9.4 and 16.4 T. Lu, M., Zhang, Y., Ugurbil, K., Chen, W., and Zhu, X.H. Magn Reson Med (2012).
393. Layer-specific fMRI reflects different neuronal computations at different depths in human V1. Olman, C.A., Harel, N., Feinberg, D.A., He, S., Zhang, P., Ugurbil, K., and Yacoub, E. PLoS One (2012) 7, e32536.
394. Contrast enhancement in TOF cerebral angiography at 7 T using saturation and MT pulses under SAR constraints: impact of VERSE and sparse pulses. Schmitter, S., Bock, M., Johst, S., Auerbach, E.J., Ugurbil, K., and Van de Moortele, P.F. Magn Reson Med (2012) 68, 188-197.
395. Metabolic modeling of dynamic brain (1)(3)C NMR multiplet data: concepts and simulations with a two-compartment neuronal-glial model. Shestov, A.A., Valette, J., Deelchand, D.K., Ugurbil, K., and Henry, P.G. Neurochem Res (2012) 37, 2388-2401.
396. Temporally-independent functional modes of spontaneous brain activity. Smith, S.M., Miller, K.L., Moeller, S., Xu, J., Auerbach, E.J., Woolrich, M.W., Beckmann, C.F., Jenkinson, M., Andersson, J., Glasser, M.F., Van Essen, D.C., Feinberg, D.A., Yacoub, E.S., and Ugurbil, K. Proc Natl Acad Sci U S A (2012) 109, 3131-3136.
397. Comparison between eight- and sixteen-channel TEM transceive arrays for body imaging at 7 T. Snyder, C.J., Delabarre, L., Moeller, S., Tian, J., Akgun, C., Van de Moortele, P.F., Bolan, P.J., Ugurbil, K., Vaughan, J.T., and Metzger, G.J. Magn Reson Med (2012) 67, 954-964.
398. 7 Tesla (T) human cardiovascular magnetic resonance imaging using FLASH and SSFP to assess cardiac function: validation against 1.5 T and 3 T. Suttie, J.J., Delabarre, L., Pitcher, A., van de Moortele, P.F., Dass, S., Snyder, C.J., Francis, J.M., Metzger, G.J., Weale, P., Ugurbil, K., Neubauer, S., Robson, M., and Vaughan, T. NMR Biomed (2012) 25, 27-34.
399. Development of functional imaging in the human brain (fMRI); the University of Minnesota experience. Ugurbil, K. Neuroimage (2012) 62, 613-619.
400. The road to functional imaging and ultrahigh fields. Ugurbil, K. Neuroimage (2012) 62, 726-735.
401. The future of the human connectome. Van Essen, D.C., and Ugurbil, K. Neuroimage (2012) 62, 1299-1310.
402. The Human Connectome Project: a data acquisition perspective. Van Essen, D.C., Ugurbil, K., Auerbach, E., Barch, D., Behrens, T.E., Bucholz, R., Chang, A., Chen, L., Corbetta, M., Curtiss,

S.W., Della Penna, S., Feinberg, D., Glasser, M.F., Harel, N., Heath, A.C., Larson-Prior, L., Marcus, D., Michalareas, G., Moeller, S., Oostenveld, R., Petersen, S.E., Prior, F., Schlaggar, B.L., Smith, S.M., Snyder, A.Z., Xu, J., Yacoub, E., and Consortium, W.U.-M.H. Neuroimage (2012) 62, 2222-2231.

403. Quantitative imaging of energy expenditure in human brain. Zhu, X.H., Qiao, H., Du, F., Xiong, Q., Liu, X., Zhang, X., Ugurbil, K., and Chen, W. Neuroimage (2012) 60, 2107-2117.
404. In vivo measurement of CBF using (17) O NMR signal of metabolically produced H(2) (17) O as a perfusion tracer. Zhu, X.H., Zhang, Y., Wiesner, H.M., Ugurbil, K., and Chen, W. Magn Reson Med (2012).
405. Spatial organization of frequency preference and selectivity in the human inferior colliculus. De Martino, F., Moerel, M., van de Moortele, P.F., Ugurbil, K., Goebel, R., Yacoub, E., and Formisano, E. Nat Commun (2013) 4, 1386.
406. Dynamically applied B1+ shimming solutions for non-contrast enhanced renal angiography at 7.0 Tesla. Metzger, G.J., Auerbach, E.J., Akgun, C., Simonson, J., Bi, X., Ugurbil, K., and van de Moortele, P.F. Magn Reson Med (2013) 69, 114-126.
407. RubiX: Combining Spatial Resolutions for Bayesian Inference of Crossing Fibres in Diffusion MRI. Sotiropoulos, S., Jbabdi, S., Andersson, J., Woolrich, M., Ugurbil, K., and Behrens, T. IEEE Trans Med Imaging (2013).
408. Effects of image reconstruction on fibre orientation mapping from multichannel diffusion MRI: Reducing the noise floor using SENSE. Sotiropoulos, S.N., Moeller, S., Jbabdi, S., Xu, J., Andersson, J.L., Auerbach, E.J., Yacoub, E., Feinberg, D., Setsompop, K., Wald, L.L., Behrens, T.E., Ugurbil, K., and Lenglet, C. Magn Reson Med (2013).
409. Magnetic resonance field strength effects on diffusion measures and brain connectivity networks. Zhan, L., Mueller, B.A., Jahanshad, N., Jin, Y., Lenglet, C., Yacoub, E., Sapiro, G., Ugurbil, K., Harel, N., Toga, A.W., Lim, K.O., and Thompson, P.M. Brain connectivity (2013) 3, 72-86
410. Stepped Impedance Resonators for High Field Magnetic Resonance Imaging. Akgun, C., Delabarre, L., Yoo, H., Sohn, S., Snyder, C., Adriany, G., Ugurbil, K., Gopinath, A., and Vaughan, J. IEEE Trans Biomed Eng (2013).
411. Multiband accelerated spin-echo echo planar imaging with reduced peak RF power using time-shifted RF pulses. Auerbach, E.J., Xu, J., Yacoub, E., Moeller, S., and Ugurbil, K. Magn Reson Med (2013) 69, 1261-1267.
412. Spatially constrained hierarchical parcellation of the brain with resting-state fMRI. Blumensath, T., Jbabdi, S., Glasser, M.F., Van Essen, D.C., Ugurbil, K., Behrens, T.E., and Smith, S.M. Neuroimage (2013) 76, 313-324.
413. Spatial organization of frequency preference and selectivity in the human inferior colliculus. De Martino, F., Moerel, M., van de Moortele, P.F., Ugurbil, K., Goebel, R., Yacoub, E., and Formisano, E. Nat Commun (2013) 4, 1386.
414. Cortical depth dependent functional responses in humans at 7T: improved specificity with 3D GRASE. De Martino, F., Zimmermann, J., Muckli, L., Ugurbil, K., Yacoub, E., and Goebel, R. PLoS One (2013) 8, e60514.
415. In vitro and in vivo studies of 17O NMR sensitivity at 9.4 and 16.4 T. Lu, M., Zhang, Y., Ugurbil, K., Chen, W., and Zhu, X.H. Magn Reson Med (2013) 69, 1523-1527.
416. Dynamically applied B1+ shimming solutions for non-contrast enhanced renal angiography at 7.0 Tesla. Metzger, G.J., Auerbach, E.J., Akgun, C., Simonson, J., Bi, X., Ugurbil, K., and van de Moortele, P.F. Magn Reson Med (2013) 69, 114-126.
417. Processing of natural sounds: characterization of multipeak spectral tuning in human auditory cortex. Moerel, M., De Martino, F., Santoro, R., Ugurbil, K., Goebel, R., Yacoub, E., and Formisano, E. J Neurosci (2013) 33, 11888-11898.

418. Cerebral TOF angiography at 7T: Impact of B shimming with a 16-channel transceiver array. Schmitter, S., Wu, X., Adriany, G., Auerbach, E.J., Ugurbil, K., and Van de Moortele, P.F. Magn Reson Med (2013).
419. Resting-state fMRI in the Human Connectome Project. Smith, S.M., Beckmann, C.F., Andersson, J., Auerbach, E.J., Bijsterbosch, J., Douaud, G., Duff, E., Feinberg, D.A., Griffanti, L., Harms, M.P., Kelly, M., Laumann, T., Miller, K.L., Moeller, S., Petersen, S., Power, J., Salimi-Khorshidi, G., Snyder, A.Z., Vu, A.T., Woolrich, M.W., Xu, J., Yacoub, E., Ugurbil, K., Van Essen, D.C., Glasser, M.F., and Consortium, W.U.-M.H. Neuroimage (2013) 80, 144-168.
420. Advances in diffusion MRI acquisition and processing in the Human Connectome Project. Sotiropoulos, S.N., Jbabdi, S., Xu, J., Andersson, J.L., Moeller, S., Auerbach, E.J., Glasser, M.F., Hernandez, M., Sapiro, G., Jenkinson, M., Feinberg, D.A., Yacoub, E., Lenglet, C., Van Essen, D.C., Ugurbil, K., Behrens, T.E., and Consortium, W.U.-M.H. Neuroimage (2013) 80, 125-143.
421. Pushing spatial and temporal resolution for functional and diffusion MRI in the Human Connectome Project. Ugurbil, K., Xu, J., Auerbach, E.J., Moeller, S., Vu, A.T., Duarte-Carvajalino, J.M., Lenglet, C., Wu, X., Schmitter, S., Van de Moortele, P.F., Strupp, J., Sapiro, G., De Martino, F., Wang, D., Harel, N., Garwood, M., Chen, L., Feinberg, D.A., Smith, S.M., Miller, K.L., Sotiropoulos, S.N., Jbabdi, S., Andersson, J.L., Behrens, T.E., Glasser, M.F., Van Essen, D.C., Yacoub, E., and Consortium, W.U.-M.H. Neuroimage (2013) 80, 80-104.
422. The WU-Minn Human Connectome Project: An overview. Van Essen, D.C., Smith, S.M., Barch, D.M., Behrens, T.E., Yacoub, E., Ugurbil, K., and Consortium, W.U.-M.H. Neuroimage (2013) 80, 62-79.
423. Simultaneous multislice multiband parallel radiofrequency excitation with independent slice-specific transmit B1 homogenization. Wu, X., Schmitter, S., Auerbach, E.J., Moeller, S., Ugurbil, K., and Van de Moortele, P.F. Magn Reson Med (2013).
424. Evaluation of slice accelerations using multiband echo planar imaging at 3 Tesla. Xu, J., Moeller, S., Auerbach, E.J., Strupp, J., Smith, S.M., Feinberg, D.A., Yacoub, E., and Ugurbil, K. Neuroimage (2013).
425. In vivo measurement of CBF using (17) O NMR signal of metabolically produced H2 (17) O as a perfusion tracer. Zhu, X.H., Zhang, Y., Wiesner, H.M., Ugurbil, K., and Chen, W. Magn Reson Med (2013) 70, 309-314.
426. Stepped impedance resonators for high-field magnetic resonance imaging. Akgun, C.E., DelaBarre, L., Yoo, H., Sohn, S.M., Snyder, C.J., Adriany, G., Ugurbil, K., Gopinath, A., and Vaughan, J.T. IEEE Trans Biomed Eng (2014) 61, 327-333.
427. Estimation of the CSA-ODF using Bayesian compressed sensing of multi-shell HARDI. Duarte-Carvajalino, J.M., Lenglet, C., Xu, J., Yacoub, E., Ugurbil, K., Moeller, S., Carin, L., and Sapiro, G. Magn Reson Med (2014) 72, 1471-1485.
428. Study protocol: The Whitehall II imaging sub-study. Filippini, N., Zsoldos, E., Haapakoski, R., Sexton, C.E., Mahmood, A., Allan, C.L., Topiwala, A., Valkanova, V., Brunner, E.J., Shipley, M.J., Auerbach, E., Moeller, S., Ugurbil, K., Xu, J., Yacoub, E., Andersson, J., Bijsterbosch, J., Clare, S., Griffanti, L., Hess, A.T., Jenkinson, M., Miller, K.L., Salimi-Khorshidi, G., Sotiropoulos, S.N., Voets, N.L., Smith, S.M., Geddes, J.R., Singh-Manoux, A., Mackay, C.E., Kivimaki, M., and Ebmeier, K.P. BMC Psychiatry (2014) 14, 159.
429. ICA-based artefact removal and accelerated fMRI acquisition for improved resting state network imaging. Griffanti, L., Salimi-Khorshidi, G., Beckmann, C.F., Auerbach, E.J., Douaud, G., Sexton, C.E., Zsoldos, E., Ebmeier, K.P., Filippini, N., Mackay, C.E., Moeller, S., Xu, J., Yacoub, E., Baselli, G., Ugurbil, K., Miller, K.L., and Smith, S.M. Neuroimage (2014) 95, 232-247.

430. Encoding of natural sounds at multiple spectral and temporal resolutions in the human auditory cortex. Santoro, R., Moerel, M., De Martino, F., Goebel, R., Ugurbil, K., Yacoub, E., and Formisano, E. PLoS Comput Biol (2014) 10, e1003412.
431. Cerebral TOF angiography at 7T: Impact of B1 (+) shimming with a 16-channel transceiver array. Schmitter, S., Wu, X., Adriany, G., Auerbach, E.J., Ugurbil, K., and Moortele, P.F. Magn Reson Med (2014) 71, 966-977.
432. Seven-tesla time-of-flight angiography using a 16-channel parallel transmit system with power-constrained 3-dimensional spoke radiofrequency pulse design. Schmitter, S., Wu, X., Auerbach, E.J., Adriany, G., Pfeuffer, J., Hamm, M., Ugurbil, K., and van de Moortele, P.F. Invest Radiol (2014) 49, 314-325.
433. Magnetic resonance imaging at ultrahigh fields. Ugurbil, K. IEEE Trans Biomed Eng (2014) 61, 1364-1379.
434. Mitigating transmit B 1 inhomogeneity in the liver at 7T using multi-spoke parallel transmit RF pulse design. Wu, X., Schmitter, S., Auerbach, E.J., Ugurbil, K., and Van de Moortele, P.F. Quant Imaging Med Surg (2014) 4, 4-10.
435. Direct control of the temperature rise in parallel transmission by means of temperature virtual observation points: Simulations at 10.5 tesla. Boulant, N., Wu, X., Adriany, G., Schmitter, S., Ugurbil, K., and Van de Moortele, P.F. Magn Reson Med (2015).
436. Evaluation of highly accelerated simultaneous multi-slice EPI for fMRI. Chen, L., A, T.V., Xu, J., Moeller, S., Ugurbil, K., Yacoub, E., and Feinberg, D.A. Neuroimage (2015) 104, 452-459.
437. Less noise, more activation: Multiband acquisition schemes for auditory functional MRI. De Martino, F., Moerel, M., Ugurbil, K., Formisano, E., and Yacoub, E. Magn Reson Med (2015) 74, 462-467.
438. Frequency preference and attention effects across cortical depths in the human primary auditory cortex. De Martino, F., Moerel, M., Ugurbil, K., Goebel, R., Yacoub, E., and Formisano, E. Proc Natl Acad Sci U S A (2015).
439. High-Resolution Mapping of Myeloarchitecture In Vivo: Localization of Auditory Areas in the Human Brain. De Martino, F., Moerel, M., Xu, J., van de Moortele, P.F., Ugurbil, K., Goebel, R., Yacoub, E., and Formisano, E. Cereb Cortex (2015) 25, 3394-3405.
440. ConnectomeDB-Sharing human brain connectivity data. Hodge, M.R., Horton, W., Brown, T., Herrick, R., Olsen, T., Hileman, M.E., McKay, M., Archie, K.A., Cler, E., Harms, M.P., Burgess, G.C., Glasser, M.F., Elam, J.S., Curtiss, S.W., Barch, D.M., Oostenveld, R., Larson-Prior, L.J., Ugurbil, K., Van Essen, D.C., and Marcus, D.S. Neuroimage (2015).
441. The BRAIN Initiative: developing technology to catalyse neuroscience discovery. Jorgenson, L.A., Newsome, W.T., Anderson, D.J., Bargmann, C.I., Brown, E.N., Deisseroth, K., Donoghue, J.P., Hudson, K.L., Ling, G.S., MacLeish, P.R., Marder, E., Normann, R.A., Sanes, J.R., Schnitzer, M.J., Sejnowski, T.J., Tank, D.W., Tsien, R.Y., Ugurbil, K., and Wingfield, J.C. Philos Trans R Soc Lond B Biol Sci (2015) 370.
442. Heritability of fractional anisotropy in human white matter: A comparison of Human Connectome Project and ENIGMA-DTI data. Kochunov, P., Jahanshad, N., Marcus, D., Winkler, A., Sprooten, E., Nichols, T.E., Wright, S.N., Hong, L.E., Patel, B., Behrens, T., Jbabdi, S., Andersson, J., Lenglet, C., Yacoub, E., Moeller, S., Auerbach, E., Ugurbil, K., Sotiropoulos, S.N., Brouwer, R.M., Landman, B., Lemaitre, H., den Braber, A., Zwiers, M.P., Ritchie, S., van Hulzen, K., Almasy, L., Curran, J., deZubicaray, G.I., Duggirala, R., Fox, P., Martin, N.G., McMahon, K.L., Mitchell, B., Olvera, R.L., Peterson, C., Starr, J., Sussmann, J., Wardlaw, J., Wright, M., Boomsma, D.I., Kahn, R., de Geus, E.J., Williamson, D.E., Hariri, A., van 't Ent, D., Bastin, M.E., McIntosh, A., Deary, I.J., Hulshoff Pol, H.E., Blangero, J., Thompson, P.M., Glahn, D.C., and Van Essen, D.C. Neuroimage (2015) 111, 300-311.

443. Measuring renal tissue relaxation times at 7 T. Li, X., Bolan, P.J., Ugurbil, K., and Metzger, G.J. NMR Biomed (2015) 28, 63-69.
444. Theoretical and experimental evaluation of multi-band EPI for high-resolution whole brain pCASL Imaging. Li, X., Wang, D., Auerbach, E.J., Moeller, S., Ugurbil, K., and Metzger, G.J. Neuroimage (2015) 106, 170-181.
445. Processing of frequency and location in human subcortical auditory structures. Moerel, M., De Martino, F., Ugurbil, K., Yacoub, E., and Formisano, E. Sci Rep (2015) 5, 17048.
446. Contextual Feedback to Superficial Layers of V1. Muckli, L., De Martino, F., Vizioli, L., Petro, L.S., Smith, F.W., Ugurbil, K., Goebel, R., and Yacoub, E. Curr Biol (2015).
447. A voxel-wise encoding model for early visual areas decodes mental images of remembered scenes. Naselaris, T., Olman, C.A., Stansbury, D.E., Ugurbil, K., and Gallant, J.L. Neuroimage (2015) 105, 215-228.
448. Design of parallel transmission radiofrequency pulses robust against respiration in cardiac MRI at 7 Tesla. Schmitter, S., Wu, X., Ugurbil, K., and Van de Moortele, P.F. Magn Reson Med (2015) 74, 1291-1305.
449. A positive-negative mode of population covariation links brain connectivity, demographics and behavior. Smith, S.M., Nichols, T.E., Vidaurre, D., Winkler, A.M., Behrens, T.E., Glasser, M.F., Ugurbil, K., Barch, D.M., Van Essen, D.C., and Miller, K.L. Nat Neurosci (2015).
450. Uludag, K., and Ugurbil, K. (2015). Physiology and Physics of the fMRI signal. In fMRI: From Nuclear Spins to Brain Function, K. Uludag, K. Ugurbil, and L. Berliner, eds. (New York: Springer), pp. 163-214.
451. High resolution whole brain diffusion imaging at 7T for the Human Connectome Project. Vu, A.T., Auerbach, E., Lenglet, C., Moeller, S., Sotiropoulos, S.N., Jbabdi, S., Andersson, J., Yacoub, E., and Ugurbil, K. Neuroimage (2015) 122, 318-331.
452. Simultaneous multi-slice Turbo-FLASH imaging with CAIPIRINHA for whole brain distortion-free pseudo-continuous arterial spin labeling at 3 and 7 T. Wang, Y., Moeller, S., Li, X., Vu, A.T., Krasileva, K., Ugurbil, K., Yacoub, E., and Wang, D.J. Neuroimage (2015) 113, 279-288.
453. O relaxation times in the rat brain at 16.4 tesla. Wiesner, H.M., Balla, D.Z., Shajan, G., Scheffler, K., Ugurbil, K., Chen, W., Uludag, K., and Pohmann, R. Magn Reson Med (2015).
454. A generalized slab-wise framework for parallel transmit multiband RF pulse design. Wu, X., Schmitter, S., Auerbach, E.J., Ugurbil, K., and Van de Moortele, P.F. Magn Reson Med (2015).
455. Comparison of RF body coils for MRI at 3 T: a simulation study using parallel transmission on various anatomical targets. Wu, X., Zhang, X., Tian, J., Schmitter, S., Hanna, B., Strupp, J., Pfeuffer, J., Hamm, M., Wang, D., Nistler, J., He, B., Vaughan, T.J., Ugurbil, K., and Van de Moortele, P.F. NMR Biomed (2015) 28, 1332-1344.
456. In vivo NAD assay reveals the intracellular NAD contents and redox state in healthy human brain and their age dependences. Zhu, X.H., Lu, M., Lee, B.Y., Ugurbil, K., and Chen, W. Proc Natl Acad Sci U S A (2015) 112, 2876-2881.
457. Direct control of the temperature rise in parallel transmission by means of temperature virtual observation points: Simulations at 10.5 Tesla. Boulant, N., Wu, X., Adriany, G., Schmitter, S., Ugurbil, K., and Van de Moortele, P.F. Magn Reson Med (2016) 75, 249-256.
458. Toward 20 T magnetic resonance for human brain studies: opportunities for discovery and neuroscience rationale. Budinger, T.F., Bird, M.D., Frydman, L., Long, J.R., Mareci, T.H., Rooney, W.D., Rosen, B., Schenck, J.F., Schepkin, V.D., Sherry, A.D., Sodickson, D.K., Springer, C.S., Thulborn, K.R., Ugurbil, K., and Wald, L.L. MAGMA (2016) 29, 617-639.
459. A multi-modal parcellation of human cerebral cortex. Glasser, M.F., Coalson, T.S., Robinson, E.C., Hacker, C.D., Harwell, J., Yacoub, E., Ugurbil, K., Andersson, J., Beckmann, C.F., Jenkinson, M., Smith, S.M., and Van Essen, D.C. Nature (2016) 536, 171-178.

460. The Human Connectome Project's neuroimaging approach. Glasser, M.F., Smith, S.M., Marcus, D.S., Andersson, J.L., Auerbach, E.J., Behrens, T.E., Coalson, T.S., Harms, M.P., Jenkinson, M., Moeller, S., Robinson, E.C., Sotiropoulos, S.N., Xu, J., Yacoub, E., Ugurbil, K., and Van Essen, D.C. Nat Neurosci (2016) 19, 1175-1187.
461. ConnectomeDB--Sharing human brain connectivity data. Hodge, M.R., Horton, W., Brown, T., Herrick, R., Olsen, T., Hileman, M.E., McKay, M., Archie, K.A., Cler, E., Harms, M.P., Burgess, G.C., Glasser, M.F., Elam, J.S., Curtiss, S.W., Barch, D.M., Oostenveld, R., Larson-Prior, L.J., Ugurbil, K., Van Essen, D.C., and Marcus, D.S. Neuroimage (2016) 124, 1102-1107.
462. Towards high-resolution 4D flow MRI in the human aorta using kt-GRAPPA and B1+ shimming at 7T. Schmitter, S., Schnell, S., Ugurbil, K., Markl, M., and Van de Moortele, P.F. J Magn Reson Imaging (2016) 44, 486-499.
463. Fusion in diffusion MRI for improved fibre orientation estimation: An application to the 3T and 7T data of the Human Connectome Project. Sotiropoulos, S.N., Hernandez-Fernandez, M., Vu, A.T., Andersson, J.L., Moeller, S., Yacoub, E., Lenglet, C., Ugurbil, K., Behrens, T.E., and Jbabdi, S. Neuroimage (2016) 134, 396-409.
464. What is feasible with imaging human brain function and connectivity using functional magnetic resonance imaging. Ugurbil, K. Philos Trans R Soc Lond B Biol Sci (2016) 371.
465. Tradeoffs in pushing the spatial resolution of fMRI for the 7T Human Connectome Project. Vu, A.T., Jamison, K., Glasser, M.F., Smith, S.M., Coalson, T., Moeller, S., Auerbach, E.J., Ugurbil, K., and Yacoub, E. Neuroimage (2016).
466. Motion-robust cardiac B1+ mapping at 3T using interleaved bloch-siegert shifts. Weingartner, S., Zimmer, F., Metzger, G.J., Ugurbil, K., Van de Moortele, P.F., and Akcakaya, M. Magn Reson Med (2016).
467. (17)O relaxation times in the rat brain at 16.4 tesla. Wiesner, H.M., Balla, D.Z., Shajan, G., Scheffler, K., Ugurbil, K., Chen, W., Uludag, K., and Pohmann, R. Magn Reson Med (2016) 75, 1886-1893.
468. A generalized slab-wise framework for parallel transmit multiband RF pulse design. Wu, X., Schmitter, S., Auerbach, E.J., Ugurbil, K., and Van de Moortele, P.F. Magn Reson Med (2016) 75, 1444-1456.
469. Distributing coil elements in three dimensions enhances parallel transmission multiband RF performance: A simulation study in the human brain at 7 Tesla. Wu, X., Tian, J., Schmitter, S., Vaughan, J.T., Ugurbil, K., and Van de Moortele, P.F. Magn Reson Med (2016) 75, 2464-2472.
470. Tradeoffs in pushing the spatial resolution of fMRI for the 7T Human Connectome Project. A, T.V., Jamison, K., Glasser, M.F., Smith, S.M., Coalson, T., Moeller, S., Auerbach, E.J., Ugurbil, K., and Yacoub, E. Neuroimage (2017) 154, 23-32.
471. A proof-of-concept study for developing integrated two-photon microscopic and magnetic resonance imaging modality at ultrahigh field of 16.4 tesla. Cui, M., Zhou, Y., Wei, B., Zhu, X.H., Zhu, W., Sanders, M.A., Ugurbil, K., and Chen, W. Scientific reports (2017) 7, 2733.
472. A 16-channel combined loop-dipole transceiver array for 7 Tesla body MRI. Erturk, M.A., Raaijmakers, A.J., Adriany, G., Ugurbil, K., and Metzger, G.J. Magn Reson Med (2017) 77, 884-894.
473. Toward imaging the body at 10.5 tesla. Erturk, M.A., Wu, X., Eryaman, Y., Van de Moortele, P.F., Auerbach, E.J., Lagore, R.L., DelaBarre, L., Vaughan, J.T., Ugurbil, K., Adriany, G., and Metzger, G.J. Magn Reson Med (2017) 77, 434-443.
474. Reconstructing the spectrotemporal modulations of real-life sounds from fMRI response patterns. Santoro, R., Moerel, M., De Martino, F., Valente, G., Ugurbil, K., Yacoub, E., and Formisano, E. Proc Natl Acad Sci U S A (2017) 114, 4799-4804.

475. Simultaneous multislice imaging in dynamic cardiac MRI at 7T using parallel transmission. Schmitter, S., Moeller, S., Wu, X., Auerbach, E.J., Metzger, G.J., Van de Moortele, P.F., and Ugurbil, K. Magn Reson Med (2017) 77, 1010-1020.
476. Motion-robust cardiac B1+ mapping at 3T using interleaved bloch-siegert shifts. Weingartner, S., Zimmer, F., Metzger, G.J., Ugurbil, K., Van de Moortele, P.F., and Akcakaya, M. Magn Reson Med (2017) 78, 670-677. 1. The Human Connectome Project 7 Tesla retinotopy dataset: Description and population receptive field analysis. Benson, N.C., Jamison, K.W., Arcaro, M.J., Vu, A.T., Glasser, M.F., Coalson, T.S., Van Essen, D.C., Yacoub, E., Ugurbil, K., Winawer, J., and Kay, K. J Vis (2018) 18, 23.
477. Optimization of functional MRI for detection, decoding and high-resolution imaging of the response patterns of cortical columns. Chaimow, D., Ugurbil, K., and Shmuel, A. Neuroimage (2018) 164, 67-99.
478. Spatial specificity of the functional MRI blood oxygenation response relative to neuronal activity. Chaimow, D., Yacoub, E., Ugurbil, K., and Shmuel, A. Neuroimage (2018) 164, 32-47.
479. The impact of ultra-high field MRI on cognitive and computational neuroimaging. De Martino, F., Yacoub, E., Kemper, V., Moerel, M., Uludag, K., De Weerd, P., Ugurbil, K., Goebel, R., and Formisano, E. Neuroimage (2018) 168, 366-382.
480. Radiofrequency heating studies on anesthetized swine using fractionated dipole antennas at 10.5 T. Eryaman, Y., Lagore, R.L., Erturk, M.A., Utecht, L., Zhang, P., Torrado-Carvajal, A., Turk, E.A., DelaBarre, L., Metzger, G.J., Adriany, G., Ugurbil, K., and Vaughan, J.T. Magn Reson Med (2018) 79, 479-488.
481. Investigating the physiological effects of 10.5 Tesla static field exposure on anesthetized swine. Eryaman, Y., Zhang, P., Utecht, L., Kose, K., Lagore, R.L., DelaBarre, L., Kulesa, J., Eberly, L.E., Adriany, G., Iles, T.L., Iaizzo, P.A., Vaughan, J.T., and Ugurbil, K. Magn Reson Med (2018) 79, 511-514.
482. RF pulse methods for use with surface coils: Frequency-modulated pulses and parallel transmission. Garwood, M., and Ugurbil, K. J Magn Reson (2018) 291, 84-93.
483. Cortical fibers orientation mapping using in-vivo whole brain 7T diffusion MRI. Gulban, O.F., De Martino, F., Vu, A.T., Yacoub, E., Ugurbil, K., and Lenglet, C. Neuroimage (2018) 178, 104-118.
484. Extending the Human Connectome Project across ages: Imaging protocols for the Lifespan Development and Aging projects. Harms, M.P., Somerville, L.H., Ances, B.M., Andersson, J., Barch, D.M., Bastiani, M., Bookheimer, S.Y., Brown, T.B., Buckner, R.L., Burgess, G.C., Coalson, T.S., Chappell, M.A., Dapretto, M., Douaud, G., Fischl, B., Glasser, M.F., Greve, D.N., Hodge, C., Jamison, K.W., Jbabdi, S., Kandala, S., Li, X., Mair, R.W., Mangia, S., Marcus, D., Mascali, D., Moeller, S., Nichols, T.E., Robinson, E.C., Salat, D.H., Smith, S.M., Sotiropoulos, S.N., Terpstra, M., Thomas, K.M., Tisdall, M.D., Ugurbil, K., van der Kouwe, A., Woods, R.P., Zollei, L., Van Essen, D.C., and Yacoub, E. Neuroimage (2018) 183, 972-984.
485. Quantitative single breath-hold renal arterial spin labeling imaging at 7T. Li, X., Auerbach, E.J., Van de Moortele, P.F., Ugurbil, K., and Metzger, G.J. Magn Reson Med (2018) 79, 815-825.
486. Sensitivity and specificity considerations for fMRI encoding, decoding, and mapping of auditory cortex at ultra-high field. Moerel, M., De Martino, F., Kemper, V.G., Schmitter, S., Vu, A.T., Ugurbil, K., Formisano, E., and Yacoub, E. Neuroimage (2018) 164, 18-31.
487. Evaluating the Columnar Stability of Acoustic Processing in the Human Auditory Cortex. Moerel, M., De Martino, F., Ugurbil, K., Formisano, E., and Yacoub, E. J Neurosci (2018) 38, 7822-7832.
488. Imaging at ultrahigh magnetic fields: History, challenges, and solutions. Ugurbil, K. Neuroimage (2018) 168, 7-32.

489. Temporal multivariate pattern analysis (tMVPA): A single trial approach exploring the temporal dynamics of the BOLD signal. Vizioli, L., Bratch, A., Lao, J., Ugurbil, K., Muckli, L., and Yacoub, E. J Neurosci Methods (2018) 308, 74-87.
490. High-resolution whole-brain diffusion MRI at 7T using radiofrequency parallel transmission. Wu, X., Auerbach, E.J., Vu, A.T., Moeller, S., Lenglet, C., Schmitter, S., Van de Moortele, P.F., Yacoub, E., and Ugurbil, K. Magn Reson Med (2018) 80, 1857-1870.
491. Scan-specific robust artificial-neural-networks for k-space interpolation (RAKI) reconstruction: Database-free deep learning for fast imaging. Akcakaya, M., Moeller, S., Weingartner, S., and Ugurbil, K. Magn Reson Med (2019) 81, 439-453.
492. The Lifespan Human Connectome Project in Aging: An overview. Bookheimer, S.Y., Salat, D.H., Terpstra, M., Ances, B.M., Barch, D.M., Buckner, R.L., Burgess, G.C., Curtiss, S.W., Diaz-Santos, M., Elam, J.S., Fischl, B., Greve, D.N., Hagy, H.A., Harms, M.P., Hatch, O.M., Hedden, T., Hodge, C., Japardi, K.C., Kuhn, T.P., Ly, T.K., Smith, S.M., Somerville, L.H., Ugurbil, K., van der Kouwe, A., Van Essen, D., Woods, R.P., and Yacoub, E. Neuroimage (2019) 185, 335-348.
493. Evolution of UHF Body Imaging in the Human Torso at 7T: Technology, Applications, and Future Directions. Erturk, M.A., Li, X., Van de Moortele, P.F., Ugurbil, K., and Metzger, G.J. Top Magn Reson Imaging (2019) 28, 101-124.
494. A simple geometric analysis method for measuring and mitigating RF induced currents on Deep Brain Stimulation leads by multichannel transmission/reception. Eryaman, Y., Kobayashi, N., Moen, S., Aman, J., Grant, A., Vaughan, J.T., Molnar, G., Park, M.C., Vitek, J., Adriany, G., Ugurbil, K., and Harel, N. Neuroimage (2019) 184, 658-668.
495. First in-vivo human imaging at 10.5T: Imaging the body at 447 MHz. He, X., Erturk, M.A., Grant, A., Wu, X., Lagore, R.L., DelaBarre, L., Eryaman, Y., Adriany, G., Auerbach, E.J., Van de Moortele, P.F., Ugurbil, K., and Metzger, G.J. Magn Reson Med (2019) Published on line before Print, DOI: 10.1002/mrm.28131.
496. Accelerated Coronary Mri Using 3d Spirit-Raki with Sparsity Regularization. Hossein Hosseini, S.A., Moeller, S., Weingartner, S., Ugurbil, K., and Akcakaya, M. Proc IEEE Int Symp Biomed Imaging (2019) 2019, 1692-1695.
497. The UNC/UMN Baby Connectome Project (BCP): An overview of the study design and protocol development. Howell, B.R., Styner, M.A., Gao, W., Yap, P.T., Wang, L., Baluyot, K., Yacoub, E., Chen, G., Potts, T., Salzwedel, A., Li, G., Gilmore, J.H., Piven, J., Smith, J.K., Shen, D., Ugurbil, K., Zhu, H., Lin, W., and Elison, J.T. Neuroimage (2019) 185, 891-905.
498. A critical assessment of data quality and venous effects in sub-millimeter fMRI. Kay, K., Jamison, K.W., Vizioli, L., Zhang, R., Margalit, E., and Ugurbil, K. Neuroimage (2019) 189, 847-869.
499. Brain annotation toolbox: exploring the functional and genetic associations of neuroimaging results. Liu, Z., Rolls, E.T., Liu, Z., Zhang, K., Yang, M., Du, J., Gong, W., Cheng, W., Dai, F., Wang, H., Ugurbil, K., Zhang, J., and Feng, J. Bioinformatics (2019) Published on line before Print, DOI: 10.1093/bioinformatics/btz128.
500. Processing complexity increases in superficial layers of human primary auditory cortex. Moerel, M., De Martino, F., Ugurbil, K., Yacoub, E., and Formisano, E. Sci Rep (2019) 9, 5502.
501. In vivo human head MRI at 10.5T: A radiofrequency safety study and preliminary imaging results. Sadeghi-Tarakameh, A., DelaBarre, L., Lagore, R.L., Torrado-Carvajal, A., Wu, X., Grant, A., Adriany, G., Metzger, G.J., Van de Moortele, P.F., Ugurbil, K., Atalar, E., and Eryaman, Y. Magn Reson Med (2019) Published on line before Print, DOI: 10.1002/mrm.28093.
502. Brain imaging with improved acceleration and SNR at 7 Tesla obtained with 64-channel receive array. Ugurbil, K., Auerbach, E., Moeller, S., Grant, A., Wu, X., Van de Moortele, P.F., Olman,

C., DelaBarre, L., Schillak, S., Radder, J., Lagore, R., and Adriany, G. Magn Reson Med (2019) 82, 495-509.

503. Human Connectome Project-style resting-state functional MRI at 7 Tesla using radiofrequency parallel transmission. Wu, X., Auerbach, E.J., Vu, A.T., Moeller, S., Van de Moortele, P.F., Yacoub, E., and Ugurbil, K. Neuroimage (2019) 184, 396-408.

504. Optimized fast GPU implementation of robust artificial-neural-networks for k-space interpolation (RAKI) reconstruction. Zhang, C., Hosseini, S.A.H., Weingartner, S., Ugurbil, K., Moeller, S., and Akcakaya, M. PLoS One (2019) 14, e0223315.

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