KAMIL UGURBIL

Education: 1971   A.B.   Columbia College, Columbia University (Physics)

1977   Ph.D.   Columbia University (Chemical Physics)

Academic Appointments

1991 - present   Founding Director, Center for Magnetic Resonance Research (CMRR), Univ Minnesota
2003 - present   McKnight Presidential Endowed Chair Professor, University of Minnesota
1996 - 2003   Margaret & H. O. Peterson Chair of Neuroradiology, University of Minnesota
1985 - present   Professor, Dept. Radiology, Neurosciences, and Medicine, Univ. Minnesota
1982 - 1985   Associate Professor, Dept. of Biochemistry, University of Minnesota
1979 - 1982   Assistant Professor, Dept. Biochemistry, Columbia University
1977 - 1979   Post-doctoral Associate, Bell Laboratories

Honors and Awards

2016   **Vehbi Koç Award**
2015   **Distinguished Fellow**, SAGE Center for the Study of the Mind
2014   **Richard Ernst Medal** and Lecture (ETH, Zürich, Switzerland)
2014   Elected into **National Academy of Inventors**
2013   **Erwin Hahn Lecture**, Erwin Hahn Institute, Essen, Germany
2013   Appointed as member of the **BRAIN initiative** Working Group
2013   Elected to **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** European Society of Mag. Reson. in Medicine and Biology
2009   Elected **Fellow of the International Society of Magnetic Resonance** (ISMAR).
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 Lecture**, 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,** the International Society of Magnetic Resonance in Medicine (ISMRM)
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**

SELECTED PUBLICATIONS (full CV available at http://www.cmrr.umn.edu/facultystaff/kamil.shtml)
(h-factor 95; Times Cited without Self Citations = 28,716 (Web of Science, May 2015))

1. Ogawa, S., D.W. Tank, R. Menon, J.M. Ellermann, S.G. Kim, H. Merkle, and **K. Ugurbil**, *Intrinsic signal changes accompanying sensory stimulation: functional brain mapping with magnetic resonance imaging*. Proc Natl Acad Sci U S A, 1992. 89(13): p. 5951-5.   **[One of the two papers that introduced fMRI, reporting the work conducted in CMRR, University of Minnesota]**

2. Ogawa, S., R. S. Menon, D. W. Tank, S. G. Kim, H. Merkle, J. M. Ellermann and **K. Ugurbil.** *Functional Brain Mapping by Blood Oxygenation Level-Dependent Contrast Magnetic Resonance Imaging. A Comparison of Signal Characteristics with a Biophysical Model*. Biophys J 64, no. 3 (1993): 803-12.   **[First published biophysical model of the BOLD effect; also the first report of the presence of spontaneous oscillations in the fMRI time series]**

3. Duong, T. Q., D. S. Kim, **K. Ugurbil** and S. G. Kim. "Localized Cerebral Blood Flow Response at Submillimeter Columnar Resolution." Proc Natl Acad Sci U S A 98, no. 19 (2001): 10904-9. **[First demonstration that blood flow and hence BOLD effect is controlled at the level of capillaries in the brain, indicating that very high resolution and high accuracy fMRI is possible]**

4. Vaughan, J.T., M. Garwood, C.M. Collins, W. Liu, L. DelaBarre, G. Adriany, P. Andersen, H. Merkle, R. Goebel, M.B. Smith, and **K. Ugurbil**, *7T vs. 4T: RF power, homogeneity, and signal-to-noise comparison in head images*. Magn Reson Med, 2001. 46(1): p. 24-30. **[Introduction of 7T for human neuroimaging, showing for the first time feasibility, and gains in SNR & Contrast]**

5. Yacoub, E., A. Shmuel, J. Pfeuffer, P.F. Van De Moortele, G. Adriany, P. Andersen, J.T. Vaughan, H. Merkle, **K. Ugurbil**, and X. Hu, *Imaging Brain Function in Humans at 7 Tesla.* Magn Reson Med, 2001. **45**(4): p. 588-94. **[First human brain fMRI at 7 Tesla]**

6. Shmuel, A., E. Yacoub, J. Pfeuffer, P.F. Van de Moortele, G. Adriany, X. Hu, and **K. Ugurbil**, *Sustained negative BOLD, blood flow and oxygen consumption response and its coupling to the positive response in the human brain*. Neuron, 2002. 36(6): p. 1195-210. **[First paper showing negative BOLD & CBF changes during stimulation in the human brain (made possible by 7T) and ascribing them to decreased oxygen consumption, and neuronal activity]**

7. Formisano, E., D.S. Kim, F. Di Salle, P.F. van de Moortele, **K. Ugurbil**, and R. Goebel, *Mirror-Symmetric Tonotopic Maps in Human Primary Auditory Cortex.* Neuron, 2003. **40**(4): p. 859-69. **[First 7T fMRI application on human neuroscience; first tonotopic maps in the human brain]**

8. Shmuel A, E. Yacoub, D. Chaimow, N.K. Logothetis, **K. Ugurbil,** *Spatio-temporal point-spread function of fMRI signal in human gray matter at 7 Tesla.* Neuroimage 2007;35(2):539-552. **[One of several papers from CMRR documenting for the firt time signifcant 7T advantages for fMRI]**

9. Yacoub, E., A. Shmuel, N. Logothetis, & **K. Ugurbil**, *Robust detection of ocular dominance columns in humans using Hahn Spin Echo BOLD functional MRI at 7 Tesla*. Neuroimage, 2007. 37(4): p. 1161-77. **[One of several CMRR papers documenting signifcant 7T advantages for fMRI, in this case for robust functional mapping of cortical columns in the human brain]**

10. Yacoub, E., N. Harel, and **K. Ugurbil**, *High-field fMRI unveils orientation columns in humans*. Proc Natl Acad Sci U S A, 2008. 105(30): p. 10607-12. **[First functional maps of orientation columns in the human visual cortex]**

11. Uludag, K., B. Muller-Bierl, and **K. Ugurbil**, *An integrative model for neuronal activity-induced signal changes for gradient and spin echo functional imaging*. Neuroimage, 2009. 48(1): p. 150-65**. [A comprehensive model for fMRI that guides our understanding of the effect of magnetic fields and physiological changes associated with neurovascular coupling**]

12. Zimmermann, J., R. Goebel, F. De Martino, P.F. van de Moortele, D. Feinberg, G. Adriany, D. Chaimow, A. Shmuel, **K. Ugurbil,** and E. Yacoub, *Mapping the Organization of Axis of Motion Selective Features in Human Area MT Using High-Field Fmri.* PLoS One, 2011. **6**(12): p. e28716. **[First cortical column and layer resolution functional maps, a result of long series of studies on neurovascular coupling, fMRI signal properties, magnetic field effects, & introduction and development of 7 Tesla for fMRI in particular and neuroimaging in general]**

13. Van Essen, D.C. and **K. Ugurbil**, *The Future of the Human Connectome.* Neuroimage, 2012. **62**(2): p. 1299-310. **[The Human Connectome Project led by Ugurbil, & Van Essen as Co-PI's]**

14. Moeller, S., E. Yacoub, E. Auerbach, J. Strupp, N. Harel, and **K. Ugurbil.** *Multi-band Multi-slice 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 2010; 63(5): 1144-53. **[Introduction of slice accelerated, multiband (MB), simultaneous multi slice (SMS) imaging for fMRI; this work initiated developments that have redefined image acquisition for the entire field of functional and diffusion weighted imaging of the human brain]**

15. **Ugurbil, K.,** Xu, J., Auerbach, E.J., Moeller, S., Vu, A.T., et al. *Pushing spatial and temporal resolution for functional and diffusion MRI in the Human Connectome Project*. Neuroimage 2013. 80, 80-104. **[Image acquisition/reconstruction accomplishments in the Human Connectome Project, extensively adapted for fMRI and diffusion weighted imaging of the human brain]**