



The Overseas Chinese Society for Magnetic Resonance in Medicine

Young Investigator Award

First Place

Ruiliang Bai

Presented on May 11, 2016 in Singapore

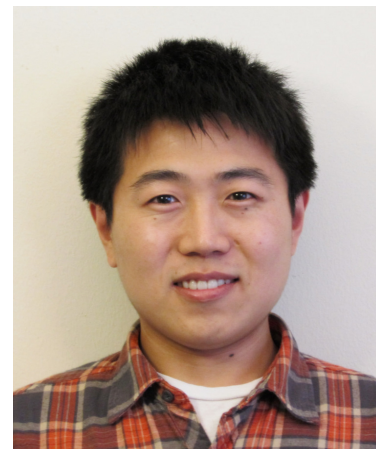
A handwritten signature in black ink, appearing to read 'Wei Chen'.

Wei Chen, Ph.D.
OCSMRM President

A handwritten signature in black ink, appearing to read 'Jiang Du'.

Jiang Du, Ph.D.
Program Chair

From National Institute of Health



Ruiliang Bai, Ph.D.



Peter J Basser, Ph.D.



Assessing the sensitivity of diffusion MRI to detect neuronal activity directly

Ruiliang Bai^{a,b}, Craig V. Stewart^c, Dietmar Plenz^c, and Peter J. Basser^{a,1}

^aSection on Quantitative Imaging and Tissue Science, Division of Imaging, Behavior and Genomic Integrity, Eunice Kennedy Shriver National Institute of Child Health and Human Development, National Institutes of Health, Bethesda, MD 20892; ^bBiophysics Program, Institute for Physical Science and Technology, University of Maryland, College Park, MD 20740; and ^cSection on Critical Brain Dynamics, Laboratory of Systems Neuroscience, National Institute of Mental Health, National Institutes of Health, Bethesda, MD 20892

Edited by Marcus E. Raichle, Washington University in St. Louis, St. Louis, MO, and approved February 2, 2016 (received for review October 8, 2015)

Functional MRI (fMRI) is widely used to study brain function in the neurosciences. Unfortunately, conventional fMRI only indirectly assesses neuronal activity via hemodynamic coupling. Diffusion fMRI was proposed as a more direct and accurate fMRI method to detect neuronal activity, yet confirmative findings have proven difficult to obtain. Given that the underlying relation between tissue water diffusion changes and neuronal activity remains unclear, the rationale for using diffusion MRI to monitor neuronal activity

reported similar reductions in water diffusivity under conditions of extreme hyperexcitability using strong pharmacologic stimulants.

However, functional diffusion MRI (fDMRI) has not been widely used or adopted since its introduction almost two decades ago. Two major reasons for this may be a dearth of experiments that convincingly establish its neurophysiological basis and the poor reproducibility of the originally reported changes in diffusion MRI signals by different laboratories. The inability to detect



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Second Place

Fang Liu

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Wei Chen, Ph.D.
OCSMRM President

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Jiang Du, Ph.D.
Program Chair

From University of Wisconsin, Madison



Fang Liu, Ph.D.



Richard Kijowski, M.D.

Awarded Publication published in 2015-2016

Articular Cartilage of the Human Knee Joint: In Vivo Multicomponent T2 Analysis at 3.0 T¹

Fang Liu, MS
Kwang Won Choi, PhD
Alexey Samsonov, PhD
Richard G. Spencer, MD, PhD
John J. Wilson, MD
Walter F. Block, PhD
Richard Kijowski, MD

Purpose:

To compare multicomponent T2 parameters of the articular cartilage of the knee joint measured by using multicomponent driven equilibrium single-shot observation of T1 and T2 (mcDESPOT) in asymptomatic volunteers and patients with osteoarthritis.

Materials and Methods:

This prospective study was performed with institutional review board approval and with written informed consent



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Young Investigator Award

Third Place

Erpeng Dai

Presented on May 11, 2016 in Singapore

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Wei Chen, Ph.D.
OCSMRM President

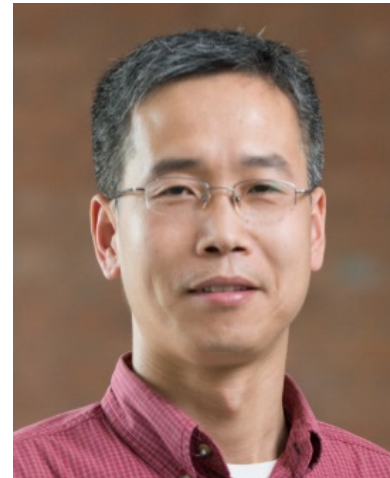
A handwritten signature in black ink, appearing to read 'Jiang Du'.

Jiang Du, Ph.D.
Program Chair

From Tsinghua University



Erpeng Dai, Ph.D.



Hua Guo, Ph.D.

Awarded Publication published in 2015-2016

FULL PAPER

Magnetic Resonance in Medicine 00:00–00 (2016)

Simultaneous Multislice Accelerated Interleaved EPI DWI Using Generalized Blipped-CAIPI Acquisition and 3D K-Space Reconstruction

Erpeng Dai,¹ Xiaodong Ma,¹ Zhe Zhang,¹ Chun Yuan,^{1,2} and Hua Guo^{1*}

Purpose: Simultaneous multislice (SMS) has been proved to be powerful for accelerating single-shot echo-planar imaging (ssh-EPI) based diffusion-weighted imaging (DWI), but there are some obstacles for applying SMS to interleaved echo-planar imaging (iEPI) DWI. The primary challenge is to effectively

netic field inhomogeneities can lead to geometric distortions, especially along tissue boundaries with different susceptibilities. In addition, ssh-EPI has a relatively long readout duration compared with transverse relaxation time, which can result in blurring artifacts and limited