

## CURRICULUM VITAE

### **Hisamoto Moriguchi / 森口央基**

(Until June 2006)

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### **Education:**

Ph.D., Department of Biomedical Engineering, Case Western Reserve University 1/04  
Cleveland, Ohio 44106, USA

Dissertation: Improvements in Spiral MR Reconstruction and Imaging

Advisor: Prof. Jeffrey L. Duerk

M.S., Department of Biomedical Engineering, CWRU 8/00

Project: Image Reconstruction from Non-uniformly Sampled K-space Data

Advisor: Prof. Jeffrey L. Duerk

M.D., Keio University / 慶應義塾大学, School of Medicine, Tokyo, Japan 3/95

### **Employment and appointments:**

Instructor starting 7/06

Department of Radiology, Toho University Hospital, Tokyo, Japan

東邦大学 医学部附属病院 放射線科講師

Instructor Department of Radiology, CWRU	7/05- 6/06
Postdoctoral fellow Department of Radiology, CWRU	1/04- 6/05
Graduate research assistant Department of Radiology, CWRU	8/98-1/04
Resident Department of Radiology, Keio University Hospital Completed two-year residency, which included training of conventional X-ray, CT, ultrasound, MRI, nuclear medicine, radiation oncology and emergency medicine.	5/95-7/97

**Research interests:**

Bunched Phase Encoding (BPE)  
Image reconstruction and sequence design of spiral MRI  
off-resonance correction, fat signal suppression,  
k-space gridding, partial Fourier reconstruction,  
parallel imaging, motion correction,  
spiral gradient design, etc.  
Application of spiral MRI to cardiovascular imaging

**Membership:**

Japanese Society for Magnetic Resonance in Medicine (JSMRM)	6/02-present
International Society for Magnetic Resonance in Medicine (ISMRM)	4/99-present

**Licensure and Certification:**

Certificate of the first kind for handling radioactive elements, Japan	5/97-present
Medical License, Japan	4/95-present

**Honors:**

International Jump Award, JSMRM	12/05
Young Investigator I. I. Rabi Award Finalist in 11th meeting of ISMRM Presentation: Dixon Techniques in Spiral Trajectories with Off-Resonance Correction: A New Approach for Fat Signal Suppression without Spatial - Spectral RF Pulses	7/03

Student representative in 53rd Nobel Laureate Meeting in Lindau, Germany (did not attend due to conflict schedule) 7/03

Award in self-oriented research, Keio University 5/93  
Project: Physical Investigation of Korotkoff's Sounds  
Advisor: Prof. Mieko Arakawa

## **Publications:**

### **Refereed Articles**

1. Moriguchi H, Duerk JL. Bunched Phase Encoding (BPE): A new fast data acquisition method in MRI. *Magn Reson Med.* 2006;55:633-48.
2. Moriguchi H, Lewin JS, Duerk JL. A fast spiral two-point Dixon technique using block regional off-resonance correction. *Magn Reson Med.* 2004;52:1342-50.
3. Moriguchi H, Duerk JL. Iterative next neighbor re-Gridding (INNG): improved reconstruction from non-uniformly sampled k-space data using rescaled matrices. *Magn Reson Med.* 2004;51:343-52.
4. Moriguchi H, Lewin JS, Duerk JL. Dixon techniques in spiral trajectories with off-resonance correction: a new approach for fat signal suppression without spatial - spectral RF pulses. *Magn Reson Med* 2003;50:915-24.
5. Moriguchi H, Dale BM, Lewin JS, Duerk JL. Block regional off-resonance correction (BRORC): a fast and effective deblurring method for spiral imaging. *Magn Reson Med* 2003;50:643-8.
6. Moriguchi H, Lewin JS, Duerk JL. Novel interleaved spiral imaging motion correction technique using orbital navigators. *Magn Reson Med* 2003;50:423-8.
7. Flask CA, Salem KA, Moriguchi H, Lewin JS, Wilson DL, Duerk JL. Keyhole Dixon method for faster, perceptually equivalent fat suppression. *J Magn Reson Imaging.* 2003;18:103-12.
8. Moriguchi H, Duerk JL. Modified block uniform resampling (BURS) algorithm using truncated singular value decomposition: fast accurate gridding with noise and artifact reduction. *Magn Reson Med* 2001;46:1189-201.
9. Moriguchi H, Wendt M, Duerk JL. Applying the uniform resampling (URS) algorithm to a lissajous trajectory: fast image reconstruction with optimal gridding. *Magn Reson Med* 2000;44:766-81.

## **Conference Abstracts**

1. Moriguchi H, Griswold MA, Sunshine JL, Duerk JL. Bunched Phase Encoding in Projection Reconstruction. In: Proceedings of the 14th annual meeting of ISMRM, Seattle, 2006. p694.
2. Moriguchi H, Griswold MA, Sunshine JL, Duerk JL. A Single Scan Two-point Dixon Technique Using Bunched Phase Encoding. In: Proceedings of the 14th annual meeting of ISMRM, Seattle, 2006. p628.
3. Moriguchi H, Griswold MA, Sunshine JL, Duerk JL. A Single Scan Two-point Ghost Phase Cancellation Method Using Bunched Phase Encoding. In: Proceedings of the 14th annual meeting of ISMRM, Seattle, 2006. p3200.
4. Moriguchi H, Duerk JL. Bunched Phase Encoding in Projection Reconstruction. In: Proceedings of the 33rd annual meeting of JSMRM, Tokyo, 2005. 132A. p205.
5. Moriguchi H, Sunshine JL, Duerk JL. Further Scan Time Reduction of Bunched Phase Encoding Using Sensitivity Encoding. In: Proceedings of the 13th annual meeting of ISMRM, Miami, 2005. p287.
6. Moriguchi H, Lewin JS, Duerk JL. Bunched Phase Encoding (BPE): A New Fast Data Acquisition Method in Magnetic Resonance Imaging. In: Proceedings of the 90th scientific assembly and annual meeting of RSNA, Chicago, 2004. p451.
7. Moriguchi H, Lewin JS, Duerk JL. Partial Fourier Spiral Reconstruction under Consideration of Off-resonance Effects. In: Proceedings of the 12th annual meeting of ISMRM, Kyoto, 2004. p346.
8. Moriguchi H, Lewin JS, Duerk JL. A Fast Spiral Two-point Dixon (Spiral 2PD) Technique Using Block Regional Off-Resonance Correction (BRORC). In: Proceedings of the 12th annual meeting of ISMRM, Kyoto, 2004. p2687.
9. Moriguchi H, Duerk JL. Precalculated Iterative Next Neighbor re-Gridding (PINNG): Accurate and Efficient Reconstruction for Non-uniformly Sampled K-space Data. In: Proceedings of the 12th annual meeting of ISMRM, Kyoto, 2004. p2675.
10. Moriguchi H, Lewin JS, Duerk JL. Spiral Dixon Techniques Using Sensitivity Encoding. In: Proceedings of the 12th annual meeting of ISMRM, Kyoto, 2004. p2683.
11. Moriguchi H, Duerk JL. POCSSENSINNG with Accelerated Iterations for Sensitivity Encoding with Non-uniformly Sampled K-space Data. In: Proceedings of the 7th annual meeting of SCMR, Barcelona, 2004. p538.
12. Moriguchi H, Lewin JS, Duerk JL. A Fast Spiral Three-Point Dixon (Spiral 3PD) Technique Using Block Regional Off-Resonance Correction (BRORC). In: Proceedings of the 89th scientific assembly and annual meeting of RSNA, Chicago, 2003. p166.

13. Moriguchi H, Lewin JS, Duerk JL. Dixon techniques in spiral trajectories with off-resonance correction: a new approach for fat signal suppression without spatial - spectral RF pulses. In: Proceedings of the 11th annual meeting of ISMRM, Toronto, 2003. p292.
14. Moriguchi H, Dale BM, Lewin JS, Duerk JL. Block Regional Off-Resonance Correction (BRORC): A Fast and Effective Deblurring method for Spiral Imaging. In: Proceedings of the 11th annual meeting of ISMRM, Toronto, 2003. p1015.
15. Moriguchi H, Lewin JS, Duerk JL. Partial Fourier Reconstruction for Spiral Imaging. In: Proceedings of the 11th annual meeting of ISMRM, Toronto, 2003. p1064.
16. Moriguchi H, Lewin JS, Duerk JL. A New Approach for Optimal Reconstruction Using Rescaled Matrices from Non-uniformly Sampled K-space Data. In: Proceedings of the 11th annual meeting of ISMRM, Toronto, 2003. p1066.
17. Moriguchi H, Duerk JL. POCSENSE using INNG (POCSENSINNG): an efficient reconstruction method for sensitivity encoding with non-uniformly sampled k-space data. ISMRM 11th Annual Meeting, Toronto, 2003. Late-breaking MR basic science session abstract.
18. Huo D, Salem KA, Moriguchi H, Wilson DL. Evaluation of noise effects in spiral MRI image reconstruction using the perceptual difference model (PDM). In: Proceedings of the 25th annual conference of EMBS, Cancun, 2003. p317.
19. Moriguchi H, Dale BM, Duerk JL. Block Regional Off-Resonance Correction (BRORC): A Fast and Effective Deblurring method for Spiral Imaging. In: Proceedings of the 6th annual meeting of SCMR, Orlando, 2003. p401.
20. Moriguchi H, Lewin JS, Duerk JL. Novel Motion Correction Technique Using Orbital navigator Echoes in Interleaved Spiral Imaging. In: Proceedings of the 10th annual meeting of ISMRM, Honolulu, 2002. p376.
21. Moriguchi H, Duerk JL. A Simple Method of Gradient Design Due to Local Minor Changes of a k-Space Trajectory using Bézier Curves. In: Proceedings of the 10th annual meeting of ISMRM, Honolulu, 2002. p824.
22. Moriguchi H, Flask CA, Lewin JS, Duerk JL. A Fat Suppression Technique Using Alternate TE In Interleaved Reversed Spiral Imaging. In: Proceedings of the 10th annual meeting of ISMRM, Honolulu, 2002. p2341.
23. Flask CA, Dale BM, Moriguchi H, Hillenbrand CM, Lewin JS, Duerk JL. Alternating TE Radial Sequence For Inherent Fat Suppression. In: Proceedings of the 10th annual meeting of ISMRM, Honolulu, 2002. p80.

24. Moriguchi H, Duerk JL. A Modified Block Uniform Resampling (BURS) Algorithm Using Truncated Singular Value Decomposition: Fast Gridding With Noise Reduction. In: Proceedings of the 9th joint annual meeting of ISMRM/ESMRMB, Glasgow, 2001. p777.
25. Salem KA, Moriguchi H, Duerk JL, Wilson DL. Optimization of Noisy Nonuniform Sampling and Image Reconstruction for Fast MRI Using a Human Vision Model. In: Proceedings of the SPIE - The International Society for Optical Engineering Medical Imaging 2001: Image Perception and Performance v 4324 2001 p.82-90.
26. Moriguchi H, Wendt M, Duerk JL. Applying Uniform ReSampling (URS) Algorithm to a Lissajous Trajectory: Fast Image Reconstruction With Optimal Gridding. In: Proceedings of the 8th annual meeting of ISMRM, Denver, 2000. p1515.
27. Moriguchi H, Wendt M, Duerk JL. Image Reconstruction Method without Using Interpolation in Non-uniformly Sampled K-space of MRI. In: Proceedings of the 85th scientific assembly and annual meeting of RSNA, Chicago, 1999. p232.
28. Moriguchi H, Sugino Y, Hiramatsu K. Differentiation between gastric leiomyoma and gastric leiomyosarcoma. Japanese Radiological Society (JRS), Yokohama, 1996.

#### **Patents:**

1. Moriguchi H, Sunshine JL, Duerk JL. Bunched Phase Encoding (BPE).
2. Moriguchi H, Lewin JS, Duerk JL. Fast spiral two-point Dixon technique using block regional off-resonance correction.
3. Moriguchi H, Duerk JL. Efficient method for MR image reconstruction using coil sensitivity encoding. US Patent Application No.10/880,329.
4. Moriguchi H, Lewin JS, Duerk JL. Three point Dixon techniques in MRI spiral trajectories with off-resonance correction where each TE is a multiple of 2.2 milliseconds. US Patent Application No.10/832,659.
5. Moriguchi H, Dale BM, Lewin JS, Duerk JL. Efficient methods for reconstruction and deblurring of magnetic resonance images. US Patent Application No.10/840,412.
6. Moriguchi H, Lewin JS, Duerk JL. Chemical species suppression for MRI imaging using spiral trajectories with off-resonance correction. US Patent No.6995560.

#### **Journal reviewer:**

Magnetic Resonance in Medicine

7/05-present

IEEE Transactions on Medical Imaging

8/03-present

**Professional service:**

International Relationship Committee in JSMRM

6/02-present

**Active grant:**

Co-Investigator (Jeffrey L. Duerk, PI), Improvements in Spiral MR Imaging, NIH 1 RO1  
EB004637-01A1

**Teaching activity:**

Co-Instructor, EBME 460: Engineering aspects of MRI

Spring/05

**Laboratory director:**

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Director, Physics Research  
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