

## CURRICULUM VITAE – KAWIN SETSOMPOP, PH.D.

### PERSONAL

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<b>I. Educational Background</b>	<a href="#"><u>Page 1</u></a>
<b>II. Professional Appointments</b>	<a href="#"><u>Page 2</u></a>
<b>III. Honors and Awards</b>	<a href="#"><u>Page 5</u></a>
<b>IV. Public and Professional Service</b>	<a href="#"><u>Page 6</u></a>
<b>V. Grants</b>	<a href="#"><u>Page 8</u></a>
<b>VI. Scholarly Publications</b>	<a href="#"><u>Page 10</u></a>
<b>VII. Patents</b>	<a href="#"><u>Page 32</u></a>

### I. Educational Background

2003	M. Eng <i>First-Class Honor</i>	Department of Engineering Science Oxford University Oxford, United Kingdom
2008	Ph.D.	Department of Electrical Engineering and Computer Science Thesis Advisor: Elfar Adalsteinsson Massachusetts Institute of Technology Cambridge, Massachusetts
2008 – 2010	Postdoctoral Fellow	Department of Radiology Harvard Medical School

2008 – 2010    Research Fellow                      Department of Radiology  
 Massachusetts General Hospital

## II. Professional Appointments

2010 – 2014    Instructor                                      Department of Radiology  
 Harvard Medical School

2014 – 2016    Assistant Professor                      Department of Radiology  
 Harvard Medical School

2016 – 2020    Associate Professor                      Department of Radiology  
 Harvard Medical School

2016 – 2020    Affiliated Faculty                      Department of Health Sciences and Technology  
 Harvard – MIT

2020 –            Associate Professor                      Department of Radiology  
 Stanford University

2020 –            Associate Professor                      Department of Electrical Engineering  
 (Courtesy)                                  Stanford University

2020 –            Associate Chair                              Research Strategic Development, Department of Radiology  
 Stanford University

## Teaching of Students in Courses

2011, 2013, 2015	HST.580/6.556, Data Acquisition and Image Reconstruction in MRI	2x1.5 hours lectures per semester
2011, 2012	HST.582J/6.555J, Biomedical Signal and Image Processing	1.5 hours lecture per semester
2012, 2014, 2016, 2018	HST.584, Magnetic Resonance Analytic, Biochemical, and Imaging Techniques	Course Director/80 hours per semester
2012, 2015, 2017	HST.583, Functional Magnetic Resonance Imaging: Data Acquisition and Analysis	1.5 hours lecture per semester
2017	HST.563, Imaging Biophysics and Clinical Application	1.5 hours lecture per semester

## Laboratory and Other Research Supervisory and Training Responsibilities

*Athinoula A. Martinos Center for Biomedical Imaging, MGH, Harvard Medical School*

2011 –            Supervision of undergraduate, graduate, post-doctoral research fellows  
 Daily mentorship

## Formally Supervised Trainees

<i>Years</i>	<i>Name</i>	<i>Degree, institution</i>	<i>Role in training</i>	<i>Current position</i>
2011-2015	Berkin Bilgic	PhD, MIT	2011-2013: PhD Thesis committee member, supervise some of research work and co-authored three first author manuscripts	Assistant Professor, Harvard Medical School
			2013- 2015: Postdoctoral Fellow	

co-authored six first author manuscripts

2012-2014	Cornelius Eichner	PhD, Max Plank, Leipzig University	Supervise research work during his research fellowship at MGH as part of his PhD program, co-authored four first author manuscripts	Postdoctoral Fellow, Max Plank
2011-2013	Steven Cauley	PhD, Purdue	Supervise research work during his research scientist role in my lab, co-authored five first author manuscripts	Assistant Professor, Harvard Medical School
2013-2015	HuiHui Ye	PhD, Zhejiang University	Supervise research work for her graduate study, as a visiting student in my lab for 2 years, co-authored two first author manuscripts	Instructor, Zhejiang University, China
2014-	Ola Norbeck	Karolinska Institute	External mentor for PhD research	Graduate Student, Karolinska Institute, Sweden
2012-2015	Itthi Chatnuntawech	PhD, MIT	PhD Thesis committee member, supervise some of research work and co-authored two first author manuscripts	Staff Scientist, National Nanotechnology Center, Thailand
2015-2017	Haifeng Wang	PhD, UW-Milwaukee	Postdoctoral Fellow supervisor	Associate Professor, Shenzhen Institutes of Advanced Technology, China
2015-	Daniel Polak	Msc, Heidelberg	Supervise research work, long term visiting student (3 years), co-authored four first author manuscripts	Graduate Student, Heidelberg University
2015-	Bo Zhao	PhD, UIUC	Co-supervise research work of his postdoc training, co-authored three first author manuscripts	Assistant Professor, Biomedical Engineering, University of Texas at Austin
2016-2017	Elda Fisch-Gomez	PhD, EPFL	Postdoctoral Fellow supervisor	Research Associate EPFL
2016-	Mary Katherine Manhard	PhD, Vanderbilt	Postdoctoral Fellow supervisor, co-authored one first author manuscript	Postdoctoral Fellow MGH

2016-	Fuyixue Wang	B.Sc. Tsinghua	Supervise research work, co-authored two first author manuscripts	PhD candidate, HST, MIT
2017-	Jun Ma	BE, Michigan	PhD Thesis committee member	Postdoctoral Fellow, Stanford
2016-	Congyu Liao	PhD, Zhejiang	Co-supervise research work (visiting student from Zhejiang University), Postdoctoral Fellow supervisor, co-authored four first author manuscripts	Postdoctoral Fellow, MGH
2017- 2018	Jenni Schulz	B.Sc, Radboud	PhD Thesis committee member	Postdoctoral Fellow, Donders Centre for Cognitive Neuroimaging, Netherlands
2017- 2019	Sohyun Han	PhD, Ulsan	Postdoctoral Fellow supervisor, co-authored one first author manuscript	Staff scientist, Sungkyunkwan University, South Korea
2017-	Zijing Dong	Msc, Tsinghua	Supervise research work (was a visiting student from Tsinghua University, and now MIT PhD student), co-authored one first author manuscript	PhD candidate, EECS, MIT
2017-	Siddharth Srinivasan Iyer	Msc, MIT	Supervise research work	PhD candidate, EECS, MIT
2017-	Maaïke Van den Boomen	Msc, Eindhoven	Supervise research work (visiting student), co-authored one first author manuscript	PhD candidate, University of Groningen, Netherlands
2018-	Merlin Fair	PhD, Imperial College	Postdoctoral Fellow supervisor, co-authored one first author manuscript	Postdoctoral Fellow, MGH
2018-	Jinmin Xu	B.Sc, Zhejiang	Visiting Student	PhD candidate, Zhejiang University, China
2018-	Gilad Liberman	PhD, Bar-Ilan	Postdoctoral Fellow supervisor	Postdoctoral Fellow, MGH
2019-	XiaoZhi Cao	PhD, Zhejiang	Postdoctoral Fellow supervisor	Postdoctoral Fellow, MGH

### Formal Teaching of Peers (e.g., CME and other continuing education courses)

2013	<i>Faculty:</i> fMRI and Connectivity Hands-on Training, 9th Biennial Minnesota Workshops on High and Ultra-high Field Imaging, University of Minnesota	2 hrs. session, Minneapolis, Minnesota
2012-	<i>Faculty:</i> Athinoula A. Martinos center: Connectivity course	1 hr./course, ~2 courses/year, Charlestown, MA
2013-	<i>Faculty:</i> Athinoula A. Martinos center: Multi-Modality course	1 hr./course, ~2 courses/year, Charlestown, MA
2013, 2015	<i>Faculty:</i> Harvard Catalyst: Advanced Imaging Course: Neuroscience Imaging for Clinical/Translational Research	1 hr./course, Cambridge, MA
2014	<i>Faculty:</i> Intelligent MR educational session, MICCAI annual conference	1 hr. lecture, Cambridge, MA
2014-	<i>Faculty:</i> MGH Radiology, MRI mini course for residence	2 hrs. lecture, Charlestown, MA
2015-	<i>Faculty:</i> Athinoula A. Martinos center: fMRI course	2 hrs./course, ~2 courses/year, Charlestown, MA
2015	<i>Faculty:</i> Hands-on training on SMS Image Reconstruction, ISMRM workshop on Simultaneous MultiSlice imaging: Neuroscience & Clinical Applications:	2 hrs. session, Pacific Groove, California
2017	<i>Faculty:</i> MGH annual Neuroradiology post graduate course	1 hr. lecture, Boston, MA
2017	<i>Faculty:</i> Introduction to Parallel Imaging and Simultaneous MultiSlice Acquisition, SMRT annual meeting	1 hr. lecture, Hawaii
2017	<i>Faculty:</i> Prototype to Product (Pathways to Commercialization): Simultaneous MultiSlice EPI with Blipped-CAIPI; ISMRM annual meeting	30 min lecture, Hawaii
2019	<i>Faculty:</i> Fast and better MRI through tailored Undersampling; ISMRM annual meeting	30 min lecture, Montreal
2019, 2020	<i>Faculty:</i> New directions in MRI through tailored acquisitions; Annual meeting of the Radiological Society of North America (RSNA)	25 min lecture, Chicago/Virtual

### III. Honors and Awards

2000 – 2003	Keble college scholar Keble College, Oxford University
2008	First place, Poster Award in High Field Category International Society of Magnetic Resonance in Medicine (ISMRM)
2010	K99/R00 Career development award NIH
2012	Young Scientist Award Finalist (Mentor for Berkin Bilgic) MICCAI
2012 – 2014	Graduate Student Scholarship (Mentor for Cornelius Eichner)

- ERP scholarship, Federal Ministry of Economics and Technology, Germany
- 2015 Junior Fellow (Mentor for Berkin Bilgic)  
ISMIRM
- 2015 Graduate Student Scholarship (Mentor for Daniel Polak)  
Bayer
- 2016 Postdoc Mobility Fellowship (Mentor for Elda Fischi-Gomez)  
Swiss National Science Foundation
- 2016 NIBIB New Horizon plenary lecture, ISMIRM Annual Meeting  
ISMIRM
- 2017 Graduate Student Scholarship (Mentor for Daniel Polak)  
Siemens
- 2017 F32 Postdoctoral Fellowship (Co-mentor for Bo Zhao)  
NIH
- 2017 Opening plenary lecture, SMRT Annual Meeting  
Society for MR Radiographers & Technologists (SMRT)
- 2017 First place, Poster Award in Diffusion study group (Mentor for Elda Fischi-Gomez)  
International Society of Magnetic Resonance in Medicine (ISMIRM)
- 2018 F32 Postdoctoral Fellowship (Mentor for Mary Kate Manhard)  
NIH
- 2018 K99/R00 Career development award (Co-mentor for Bo Zhao)  
NIH
- 2018 China Scholarship Counsel (CSC) program, two-year fellowship (Mentor for Jinmin Xu)  
China
- 2019 Young Investigator Award Finalist (Mentor for Fuyixue Wang)  
International Society of Magnetic Resonance in Medicine (ISMIRM)
- 2019 2<sup>nd</sup> place, Young Investigator Award (Mentor for Congyu Liao)  
Overseas Chinese Society for Magnetic Resonance in Medicine (OSCMRM)
- 2020 ISMIRM Senior Fellow  
International Society of Magnetic Resonance in Medicine (ISMIRM)
- 2020 First place, Diffusion study group (Mentor for Merlin Fair)  
International Society of Magnetic Resonance in Medicine (ISMIRM)
- 2021 Best abstract award in the Validation Category; qMR Study Group competition (Mentor for Fuyixue Wang); International Society of Magnetic Resonance in Medicine (ISMIRM)

#### IV. Public and Professional Service

##### *National*

- 2010 – 2012 Organizer of Brain Mapping Seminar  
Athinoula A. Martinos Center for Biomedical Imaging

- 2012 – 2020 Director of HST 584  
Magnetic Resonance Analytic, Biochemical, and Imaging Techniques  
Harvard-MIT Division of Health Sciences and Technology
- 2021 – Faculty Search Committee: VA Neuroradiology
- 2021 – Faculty Search Committee: MIPS Neuro/CVI
- 2021 – Graduate Student Admission Committee: Dept. of Electrical Engineering
- 2021 – Curriculum Committee: Biomedical Physics (BMP) program

*International*

- 2012 Founder  
MR club of Thailand (MCT)
- 2012 Initiate, organize and chair  
ISMRM global outreach workshop, Thailand
- 2015 Advisory Board  
Magnetic Resonance in South East Asia workshop, Singapore
- 2018 Advisory Board  
KinetiCor—Motion Correction Technologies

**Committee Service**

*Regional*

- 2014 Co-organizer, Biomedical Imaging session  
40th annual Northeast Bioengineering Conference (NEBEC)

*International*

- 2018 – Annual Meeting Program Committee  
(Acquisition, Reconstruction and Analysis table chair)  
International Society of Magnetic Resonance in Medicine (ISMRM)

**Professional Societies**

- 2006 – International Society of Magnetic Resonance in Medicine (ISMRM)  
Member
- 2009 ISMRM  
Moderator, pulse design session,  
17<sup>th</sup> annual conference
- 2010 ISMRM  
Moderator, Parallel RF Transmission session, 18<sup>th</sup> annual conference
- 2011 ISMRM  
Moderator, Parallel Transmission in three dimensions session  
Co-organizer: Sunrise Educational Course on Image Reconstruction

	19 <sup>th</sup> annual conference
2014	ISMRM Moderator, High Field study session, Moderator, Multi-band Methods session, 22nd annual conference
2015	ISMRM Co-chair, ISMRM challenge: competition on RF pulse design Co-chair, ISMRM workshop on Simultaneous MultiSlice imaging: Neuroscience & Clinical Applications
2016	ISMRM Moderator, Diffusion Acquisition session, Moderator, fMRI: Acquisition, Contrast, Artefacts session, 24 <sup>th</sup> annual conference

### Grant Review Activities

2015, 2018	Netherlands Organization of Scientific Research (STW) Adhoc reviewer
2014	Austrian Science Fund (FWF) Adhoc reviewer
2016-2019	National Institute of Health, NIBIB Adhoc reviewer - BMIT-A study section - IGIS study section - BRAIN Initiative Fellowship (F32)
2019	Wellcome Trust Fellowship (U.K.) Adhoc reviewer
2021	French National Research Agency Adhoc reviewer

### Editorial Activities

#### *Ad hoc reviewer*

Magnetic Resonance in Medicine  
 NeuroImage  
 IEEE Transactions on Medical Imaging  
 Magnetic Resonance Materials in Physics, Biology and Medicine (MAGMA)  
 Journal of Magnetic Resonance Imaging  
 Nature in Biomedical Engineering  
 PLOS One

#### *Other Editorial Roles*

2015	Guest Editor Magnetic Resonance in Medicine, <i>Virtual Issue on Simultaneous MultiSlice Imaging</i>
2015 –	Editorial Board Tomography



We propose a primarily retrospective investigation of imaging-based targeting for Deep Brain Stimulation (DBS) for severe obsessive-compulsive disorder (OCD). We aim to increase response rates while testing imaging biomarkers that could guide therapeutic intervention.

Role: Investigator

**U01 EB026996** **Rosen PI** **09/21/18 – 06/20/23**

*Connectome 2.0: Developing the next generation human MRI scanner for bridging studies of the micro-, meso- and macro-connectome*

Our goal here is to translate our initial experience into building a one-of-a-kind high-slew rate, ultra- high-gradient strength MRI scanner that is optimized for the study of neural tissue microstructure and neural circuits across multiple length scales.

Role: Investigator

Pending Funding

*Note: The following grant(s)/subaward(s) to be transferred to new institution (moved from MGH to Stanford)*

**R01 EB016695** **Grissom (PI)** **04/01/18 – 01/31/22**

NIH/Vanderbilt

*Array-Compressed Parallel Transmission for High Resolution Neuroimaging at 7T*

We will work with the Vanderbilt team to develop new synergistic designs of RF excitation, EPI readout, and image reconstruction that can make the best use of the proposed array-compressed parallel transmit hardware.

Role: Sub-PI

**P41 EB030006** **Rosen (PD/PI)** **08/01/20 – 04/30/25**

NIH/Massachusetts General Hospital

*Center for Mesoscale Mapping - Project 2*

The goal of the Center for Mesoscale Mapping is to drive the convergence of microscopic- and macroscopic- scale evaluation of brain structure and function for human translational neuroscience, by developing and applying tools to study the spatial distribution and temporal orchestration of mesoscopic events in the human brain.

Role: Project Leader

**R01 EB019437** **Polimeni (PI)** **07/01/20 – 06/30/24**

NIH/Massachusetts General Hospital

*fMRI Technologies for Imaging at the Limit of Biological Spatiotemporal Resolution*

To develop methods for 7 Tesla functional MRI, including highly accelerated acquisitions for purely T2 weighted BOLD, and to demonstrate the ability of these methods to achieve higher neuronal specificity than standard methods.

Role: Co-PI, Sub-PI

Prior Funding

08/2010 – 07/2015 NIH/NIBIB/R00/K99 EB012107

*MRI technology for measurement of functional and structural connectivity in brain.*

Role: PI

09/2012 – 11/2017 NIH/R01 MH097979

*Taking Advance Diffusion Imaging to the Clinic for Pediatric Patients with ADHD*

Role: Subcontract PI

09/2014 – 05/2017 NIH/R24 MH106096

*MRI Corticography (MRCOG): Microscale Human Cortical Imaging*

Role: Co-PI

08/2013 – 07/2017 NIH/R01 EB017219

*Magnetic Resonance Fingerprinting (MRF) for Improved high field MRI*

Role: Investigator

09/2014 – 05/2017 NIH/R24 MH106053

*Magnetic Particle Imaging (MPI) for Functional Brain Imaging in Humans*

Role: Investigator

04/2016 – 03/2018 NIH/R44 NS084788

*Highly Accelerated Simultaneous Multi-Slice Phase Contrast MRI*

Role: Subcontract-PI

04/2015 – 03/2018 NIH/R44 NS084788

*Highly effective cerebral perfusion MRI*

Role: Subcontract-PI

06/2014 – 05/2019 NIH/P41 EB015896

*Center for Functional Imaging Technologies*

Role: Investigator

## VI. Scholarly Publications

1. **Setsoompop K**, Wald LL, Alagappan V, Gagoski B, Hebrank F, Fontius U, Schmitt F, Adalsteinsson E. Parallel RF transmission with eight channels at 3 Tesla. *Magn Reson Med*. 2006 Nov;56(5):1163-71. PubMed PMID: 17036289.
2. Alagappan V, Nistler J, Adalsteinsson E, **Setsoompop K**, Fontius U, Zelinski A, Vester M, Wiggins GC, Hebrank F, Renz W, Schmitt F, Wald LL. Degenerate mode band-pass birdcage coil for accelerated parallel excitation. *Magn Reson Med*. 2007 Jun;57(6):1148-58. PubMed PMID: 17534905.
3. **Setsoompop K**, Wald LL, Alagappan V, Gagoski BA, Adalsteinsson E. Magnitude least squares optimization for parallel radio frequency excitation design demonstrated at 7 Tesla with eight channels. *Magn Reson Med*. 2008 Apr;59(4):908-15. doi: 10.1002/mrm.21513. PubMed PMID: 18383281; PubMed Central PMCID: PMC2715966.
4. Zelinski AC, Wald LL, **Setsoompop K**, Alagappan V, Gagoski BA, Goyal VK, Adalsteinsson E. Fast slice-selective radio-frequency excitation pulses for mitigating B+1 inhomogeneity in the human brain at 7 Tesla. *Magn Reson Med*. 2008 Jun;59(6):1355-64. doi: 10.1002/mrm.21585. PubMed PMID: 18506800; PubMed Central PMCID: PMC2723802.
5. Zelinski AC, Wald LL, **Setsoompop K**, Goyal VK, Adalsteinsson E. Sparsity-enforced slice-selective MRI RF excitation pulse design. *IEEE Trans Med Imaging*. 2008 Sep;27(9):1213-29. doi: 10.1109/TMI.2008.920605. PubMed PMID: 18779063; PubMed Central PMCID: PMC2666002.
6. **Setsoompop K**, Alagappan V, Zelinski AC, Potthast A, Fontius U, Hebrank F, Schmitt F, Wald LL, Adalsteinsson E. High-flip-angle slice-selective parallel RF transmission with 8 channels at 7 T. *J Magn Reson*. 2008 Nov;195(1):76-84. doi:10.1016/j.jmr.2008.08.012. Epub 2008 Aug 30. PubMed PMID: 18799336; PubMed Central PMCID: PMC2610679.
7. **Setsoompop K**, Alagappan V, Gagoski B, Witzel T, Polimeni J, Potthast A, Hebrank F, Fontius U, Schmitt F, Wald LL, Adalsteinsson E. Slice-selective RF pulses for in vivo B1+ inhomogeneity mitigation at 7 tesla using parallel RF excitation with a 16-element coil. *Magn Reson Med*. 2008 Dec;60(6):1422-32. doi: 10.1002/mrm.21739. PubMed PMID: 19025908; PubMed Central PMCID: PMC2635025.

8. **Setsoompop K**, Alagappan V, Gagoski BA, Potthast A, Hebrank F, Fontius U, Schmitt F, Wald LL, Adalsteinsson E. Broadband slab selection with B1+ mitigation at 7T via parallel spectral-spatial excitation. *Magn Reson Med*. 2009 Feb;61(2):493-500. doi: 10.1002/mrm.21834. PubMed PMID: 19161170; PubMed Central PMCID: PMC2632721.
9. **Setsoompop K**, Gagoski BA, Polimeni JR, Witzel T, Wedeen VJ, Wald LL. Blipped-controlled aliasing in parallel imaging for simultaneous multislice echo planar imaging with reduced g-factor penalty. *Magn Reson Med*. 2012 May;67(5):1210-24. doi: 10.1002/mrm.23097. Epub 2011 Aug 19. PubMed PMID: 21858868; PubMed Central PMCID: PMC3323676. *Most cited article in MRM 2013*
10. **Setsoompop K**, Cohen-Adad J, Gagoski BA, Raji T, Yendiki A, Keil B, Wedeen VJ, Wald LL. Improving diffusion MRI using simultaneous multi-slice echo planar imaging. *Neuroimage*. 2012 Oct 15;63(1):569-80. doi: 10.1016/j.neuroimage.2012.06.033. Epub 2012 Jun 23. PubMed PMID: 22732564; PubMed Central PMCID: PMC3429710.
11. Bilgic B, **Setsoompop K**, Cohen-Adad J, Yendiki A, Wald LL, Adalsteinsson E. Accelerated diffusion spectrum imaging with compressed sensing using adaptive dictionaries. *Magn Reson Med*. 2012 Dec;68(6):1747-54. doi: 10.1002/mrm.24505. Epub 2012 Sep 24. PubMed PMID: 23008145; PubMed Central PMCID: PMC3504650. *Cover article for Dec 2012*
12. Keil B, Blau JN, Biber S, Hoecht P, Tountcheva V, **Setsoompop K**, Triantafyllou C, Wald LL. A 64-channel 3T array coil for accelerated brain MRI. *Magn Reson Med*. 2013 Jul;70(1):248-58. doi: 10.1002/mrm.24427. Epub 2012 Jul 31. PubMed PMID: 22851312; PubMed Central PMCID: PMC3538896.
13. **Setsoompop K**, Kimmlingen R, Eberlein E, Witzel T, Cohen-Adad J, McNab JA, Keil B, Tisdall MD, Hoecht P, Dietz P, Cauley SF, Tountcheva V, Matschl V, Lenz VH, Heberlein K, Potthast A, Thein H, Van Horn J, Toga A, Schmitt F, Lehne D, Rosen BR, Wedeen V, Wald LL. Pushing the limits of in vivo diffusion MRI for the Human Connectome Project. *Neuroimage*. 2013 Oct 15;80:220-33. doi: 10.1016/j.neuroimage.2013.05.078. Epub 2013 May 24. PubMed PMID: 23707579; PubMed Central PMCID: PMC3725309.
14. Bilgic B, Chatnuntawech I, **Setsoompop K**, Cauley SF, Yendiki A, Wald LL, Adalsteinsson E. Fast dictionary-based reconstruction for diffusion spectrum imaging. *IEEE Trans Med Imaging*. 2013 Nov;32(11):2022-33. doi: 10.1109/TMI.2013.2271707. Epub 2013 Jul 4. PubMed PMID: 23846466; PubMed Central PMCID: PMC4689148.
15. Sotiropoulos SN, Moeller S, Jbabdi S, Xu J, Andersson JL, Auerbach EJ, Yacoub E, Feinberg D, **Setsoompop K**, Wald LL, Behrens TE, Ugurbil K, Lenglet C. Effects of image reconstruction on fiber orientation mapping from multichannel diffusion MRI: reducing the noise floor using SENSE. *Magn Reson Med*. 2013 Dec;70(6):1682-9. doi: 10.1002/mrm.24623. Epub 2013 Feb 7. PubMed PMID: 23401137; PubMed Central PMCID: PMC3657588.
16. Poser BA, Anderson RJ, Guérin B, **Setsoompop K**, Deng W, Mareyam A, Serano P, Wald LL, Stenger VA. Simultaneous multislice excitation by parallel transmission. *Magn Reson Med*. 2014 Apr;71(4):1416-27. doi: 10.1002/mrm.24791. Epub 2013 May 28. PubMed PMID: 23716365; PubMed Central PMCID: PMC3830622.
17. Eichner C, **Setsoompop K**, Koopmans PJ, Lützkendorf R, Norris DG, Turner R, Wald LL, Heidemann RM. Slice accelerated diffusion-weighted imaging at ultra-high field strength. *Magn Reson Med*. 2014 Apr;71(4):1518-25. doi: 10.1002/mrm.24809. Epub 2013 Jun 24. PubMed PMID: 23798017.
18. Chang WT, **Setsoompop K**, Ahveninen J, Belliveau JW, Witzel T, Lin FH. Improving the spatial resolution of magnetic resonance inverse imaging via the blipped-CAIPI acquisition scheme. *Neuroimage*. 2014 May 1;91:401-11. doi: 10.1016/j.neuroimage.2013.12.037. Epub 2013 Dec 27. PubMed PMID: 24374076; PMCID: PMC4086630.

19. Cauley SF, Polimeni JR, Bhat H, Wald LL, **Setsompop K**. Interslice leakage artifact reduction technique for simultaneous multislice acquisitions. *Magn Reson Med*. 2014 Jul;72(1):93-102. doi: 10.1002/mrm.24898. Epub 2013 Aug 20. PubMed PMID: 23963964; PubMed Central PMCID: PMC4364522.
20. Zhao W, Cohen-Adad J, Polimeni JR, Keil B, Guerin B, **Setsompop K**, Serano P, Mareyam A, Hoecht P, Wald LL. Nineteen-channel receive array and four-channel transmit array coil for cervical spinal cord imaging at 7T. *Magn Reson Med*. 2014 Jul;72(1):291-300. doi: 10.1002/mrm.24911. Epub 2013 Aug 20. PubMed PMID: 23963998; PubMed Central PMCID: PMC4761437.
21. Bilgic B, Chatnuntawech I, Fan AP, **Setsompop K**, Cauley SF, Wald LL, Adalsteinsson E. Fast image reconstruction with L2-regularization. *J Magn Reson Imaging*. 2014 Jul;40(1):181-91. doi: 10.1002/jmri.24365. Epub 2013 Nov 4. PubMed PMID: 24395184; PubMed Central PMCID: PMC4106040.
22. Eichner C, Jafari-Khouzani K, Cauley S, Bhat H, Polaskova P, Andronesi OC, Rapalino O, Turner R, Wald LL, Stufflebeam S, **Setsompop K**. Slice accelerated gradient-echo spin-echo dynamic susceptibility contrast imaging with blipped CAIPI for increased slice coverage. *Magn Reson Med*. 2014 Sep;72(3):770-8. doi:10.1002/mrm.24960. Epub 2013 Oct 28. PubMed PMID: 24285593; PubMed Central PMCID: PMC4002660.
23. Rathi Y, Michailovich O, Laun F, **Setsompop K**, Grant PE, Westin CF. Multi-shell diffusion signal recovery from sparse measurements. *Med Image Anal*. 2014 Oct;18(7):1143-56. doi: 10.1016/j.media.2014.06.003. Epub 2014 Jul 5. PubMed PMID: 25047866; PubMed Central PMCID: PMC4145038.
24. Eichner C, Wald LL, **Setsompop K**. A low power radiofrequency pulse for simultaneous multislice excitation and refocusing. *Magn Reson Med*. 2014 Oct;72(4):949-58. doi: 10.1002/mrm.25389. Epub 2014 Aug 7. PubMed PMID: 25103999.
25. Bilgic B, Fan AP, Polimeni JR, Cauley SF, Bianciardi M, Adalsteinsson E, Wald LL, **Setsompop K**. Fast quantitative susceptibility mapping with L1-regularization and automatic parameter selection. *Magn Reson Med*. 2014 Nov;72(5):1444-59. doi:10.1002/mrm.25029. Epub 2013 Nov 20. PubMed PMID: 24259479; PubMed Central PMCID: PMC4111791.
26. Ning L, **Setsompop K**, Michailovich O, Makris N, Westin CF, Rathi Y. A Compressed-Sensing Approach for Super-Resolution Reconstruction of Diffusion MRI. *Inf Process Med Imaging*. 2015;24:57-68. PubMed PMID: 26221667; PubMed Central PMCID: PMC4578654.
27. Cauley SF, Xi Y, Bilgic B, Xia J, Adalsteinsson E, Balakrishnan V, Wald LL, **Setsompop K**. Fast reconstruction for multichannel compressed sensing using a hierarchically semiseparable solver. *Magn Reson Med*. 2015 Mar;73(3):1034-40. doi: 10.1002/mrm.25222. Epub 2014 Mar 17. PubMed PMID: 24639238; PubMed Central PMCID: PMC4167172.
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72. Iyer S, Polak D, Liao C, Cauley S, Bilgic B, **Setsompop K**. Rapid, Time-Resolved Brain Imaging with Multiple Clinical Contrasts using Wave-Shuffling. ISMRM, 2019.
73. Bilgic B, Liao C, Manhard MK, Tian Q, Chatnuntawech I, Iyer S, Cauley S, Feiweier T, Giri S, Hu Y, Huang S, Polimeni J, Wald LL, **Setsompop K**. Robust high-quality multi-shot EPI with low-rank prior and machine learning. ISMRM, 2019.
74. Liao C, Stockmann J, Tian Q, Bilgic B, Manhard MK, Wald LL, **Setsompop K**. High-fidelity, high-isotropic resolution diffusion imaging through gSlider acquisition with B1+ & T1 corrections and multi-coil B0 shim array. ISMRM, 2019.
75. Van den Boomen M, Snel GJ, Nguyen C, Manhard MK, Sosnovik D, Dierckx R, Catana C, Izquierdo-Garcia D, Rosen B, Prakken N, Borra R, **Setsompop K**. Heartbeat-to-Heartbeat Quantitative Myocardial

- Oxygenation Imaging within a Single Breath-Hold using a Combined Gradient Echo-Spin Echo EPI (GESE-EPI) Sequence in Patients with Hypertension. ISMRM, 2019.
76. Liu W, Zhou K, Cheng S, **Setsompop K**. 3D Flow Compensated Interleaved EPI for a Fast-High-Resolution Susceptibility-Weighted Imaging at 1.5T. ISMRM, 2019.
  77. In MH, Dong Z, **Setsompop K**, Kang D, Yarach U, Shu Y, Trzasko J, Huston J, Bernstein M. An efficient reconstruction by combining tilted-CAIPI with eddy-current calibration for high-resolution distortion-free diffusion imaging using DIADEM. ISMRM, 2019.
  78. Viessmann O, Chen J, **Setsompop K**, Wald LL, Polimeni J. BOLD temporal SNR bias and variance across the HCP population as a function of cortical B<sub>0</sub>-orientation and orientation variability. ISMRM, 2019. ISMRM, 2019.
  79. Tian Q, Ngamsombat C, Bilgic B, Fan Q, Hu Y, McNab J, Witzel T, **Setsompop K**, Polimeni J, Huang S. Creating a diffusion tractography-based atlas of human thalamic ventral intermediate nucleus aided by deep learning. ISMRM, 2019.
  80. Nguyen C, Reese T, Liao C, Kostis W, Jackowski M, **Setsompop K**, Mekkaoui C. Free Breathing Isotropic Cardiac Diffusion Tensor MRI of the Left Ventricle Using M2-gSlider: Unfolding the Fiber Architecture of the Human Heart. ISMRM, 2019.
  81. Cauley S, Polak D, Liu W, Bilgic B, Gagoski B, Grant EP, Conklin J, Kirsch J, Huang S, **Setsompop K**, Wald LL. Geometric Coil Mixing (GCM) to Dampen Confounding Signals in MRI Reconstruction. ISMRM, 2019.
  82. Berman A, Witzel T, Grissom W, Park D, **Setsompop K**, Polimeni J. High-resolution segmented-accelerated EPI using Variable Flip Angle FLEET with tailored slice profiles. ISMRM, 2019.
  83. Lewis L, Bonmassar G, **Setsompop K**, Stickgold R, Rosen B, Polimeni J. Identifying focal thalamic activity underlying sleep and wake states through EEG-fMRI at 7 Tesla. ISMRM, 2019.
  84. Ramos-Llordén G, Aja-Fernandez S, Liao C, **Setsompop K**, Rathi Y. Joint-diffusion GRAPPA: enabling higher acceleration rates in dMRI by exploiting joint information from the k- and q-space. ISMRM, 2019.
  85. Wang Y, Dong Z, Hu Z, Li X, Wang F, **Setsompop K**, Pan Z, Yuan C, Guo H. Multi-contrast Distortion-free MRI using PSF-EPI. ISMRM, 2019.
  86. Cho J, Park H, **Setsompop K**, Bilgic B. Multi-shot Echo-planar Imaging with Simultaneous MultiSlice Wave-Encoding. ISMRM, 2019.
  87. Haskell M, Cauley S, Bilgic B, Hossbach J, Pfeuffer J, **Setsompop K**, Wald LL. Network Accelerated Motion Estimation and Reduction (NAMER): Accelerating forward model based retrospective motion correction using a convolutional neural network. ISMRM, 2019.
  88. Conklin J, Longo MG, Cauley S, **Setsompop K**, Kirsch J, Liu W, Ahn S, Beck T, Gonzalez R, Schaefer P, Rapalino O, Huang S. Prospective Evaluation of Wave-CAIPI Susceptibility-Weighted Imaging (SWI) Compared to Conventional 3D SWI in a Clinical Setting. ISMRM, 2019.
  89. Arefeen Y, Arango N, Iyer S, Gagoski B, **Setsompop K**, White J, Adalsteinsson E. Refined-subspaces for two iteration single shot T2-Shuffling using dictionary matching. ISMRM, 2019.
  90. Tian Q, Bilgic B, Fan Q, Ngamsombat C, Liao C, Hu Y, Witzel T, **Setsompop K**, Polimeni J, Huang S. Six-direction diffusion tensor MRI using a convolutional neural network. ISMRM, 2019.
  91. Tian Q, Bilgic B, Fan Q, Ngamsombat C, Chaudhari A, Ohringer N, Hu Y, Witzel T, **Setsompop K**, Polimeni J, Huang S. SuperSurfer: Cortical surface reconstruction using super-resolution anatomical MR images synthesized by deep learning. ISMRM, 2019.
  92. Cao X, Liao C, Iyer S, He H, **Setsompop K**, Zhong J, Bilgic B. T2-gSlider: rapid high resolution T2 mapping with generalized SLIce Dithered Enhanced Resolution and model-based reconstruction.

93. Polak D, Chatnuntawech I, Yoon J, Iyer S, **Setsompop K**, Bilgic B. VaNDI: Variational Nonlinear Dipole Inversion enables QSM without free parameters. ISMRM, 2019.
94. Liu Y, Liao C, **Setsompop K**, Haldar J. Whole-brain DTI at 860  $\mu\text{m}$  isotropic resolution in 10 minutes on a commercial 3T Scanner. ISMRM, 2019.

## 2018

95. Manhard MK, Bilgic B, Liao C, Han S, Witzel T, Yen YF, **Setsompop K**. Accelerated dynamic quantitative perfusion imaging using an optimized simultaneous multi-slice (SMS) spin and gradient echo (SAGE) sequence with joint-virtual coil (JVC) reconstruction. ISMRM, 2018.
96. Han S, Liao C, Manhard MK, Bilgic B, Wang F, Blazejewska A, Van den Boomen M, Grissom W, Polimeni J, **Setsompop K**. Accelerated spin-echo fMRI using generalized SLIce Dithered Enhanced Resolution Simultaneous MultiSlice (gSlider-SMS) with 'complex-basis' RF-encoding. ISMRM, 2018.
97. Bilgic B, Cauley S, Chatnuntawech I, Manhard MK, Wang F, Haskell M, Liao C, Wald LL, **Setsompop K**. Combining MR-Physics and Machine Learning to Address Intractable Reconstruction Problems. ISMRM, 2018.
98. Wang F, Dong Z, Reese T, Bilgic B, Manhard MK, Wald LL, **Setsompop K**. Echo Planar Time-resolved Imaging (EPTI). ISMRM, 2018.
99. Polak D, Cauley S, Huang S, Longo M, Bilgic B, Raithel E, Wald LL, **Setsompop K**. Highly-accelerated volumetric brain protocol using optimized Wave-CAIPI encoding. ISMRM, 2018.
100. Dong Z, Wang F, Reese T, Manhard MK, Bilgic B, Wald LL, Guo H, **Setsompop K**. Fast Distortion-Free Diffusion Imaging using "tilted-CAIPI" PSF-EPI. ISMRM, 2018.
101. Iyer S, Bilgic B, **Setsompop K**. Faster T2 Shuffling with Wave-encoding. ISMRM, 2018.
102. Bilgic B, Kim T, Liao C, Manhard MK, Wald LL, Haldar J, **Setsompop K**. Improving Parallel Imaging by Jointly Reconstructing Multi-Contrast Data. ISMRM, 2018.
103. Bilgic B, Cauley S, Wald LL, **Setsompop K**. Joint SENSE Reconstruction for Faster Multi-Contrast Wave Encoding. ISMRM, 2018.
104. Liao C, Manhard MK, Bilgic B, Fan Q, Wang H, Han S, Park D, Wang F, Zhong J, Wald LL, **Setsompop K**. Joint Virtual Coil Reconstruction with Background Phase Matching for Highly Accelerated Diffusion Echo-Planar Imaging. ISMRM, 2018.
105. Wang F, Bilgic B, Dong Z, Manhard MK, Ohringer N, Zhao B, Haskell M, Cauley S, Fan Q, Witzel T, Adalsteinsson E, Wald LL, **Setsompop K**. Motion-robust sub-millimeter isotropic diffusion imaging through Motion Corrected Generalized Slice Dithered Enhanced Resolution (MC-gSlider) acquisition. ISMRM, 2018.
106. Liao C, Bilgic B, Manhard MK, Cao X, Zhong J, Wald LL, **Setsompop K**. Optimized 3D Stack-of-Spirals MR Fingerprinting with Hybrid Sliding-Window and GRAPPA Reconstruction. ISMRM, 2018.
107. Van den Boomen M, Manhard MK, Nguyen C, Han S, Emblem K, Slart R, Catana C, Prakken N, Rosen B, Borra R, **Setsompop K**. Simultaneous Multi-Slice Gradient Echo Spin Echo EPI (SMS-GESE-EPI) enables simultaneous cardiac T2 and T2\* imaging and mapping across six slices within a single heartbeat. ISMRM, 2018.
108. Dong Z, Wang F, Reese T, Manhard MK, Bilgic B, Wald LL, Guo H, **Setsompop K**. Tilted-CAIPI for Highly Accelerated Distortion-Free EPI with Point Spread Function (PSF) Encoding. ISMRM, 2018.
109. Gong E, Bilgic B, **Setsompop K**, Fan A, Zaharchuk G, Pauly J. Accurate and Efficient QSM Reconstruction using Deep Learning. ISMRM, 2018.

110. Lewis L, **Setsompop K**, Rosen B, Polimeni J. High-frequency BOLD responses in human thalamus detected through fast fMRI at 7 Tesla. ISMRM, 2018.
111. Wei H, Bilgic B, **Setsompop K**, Keil B, Feinberg D, Liu C. Imaging Human Brain Cortical Substructure with Quantitative Susceptibility Mapping at 7T. ISMRM, 2018.
112. Zhao B, Haldar J, Liao C, Ma D, Griswold M, **Setsompop K**, Wald LL. Optimal Experiment Design for Magnetic Resonance Fingerprinting: New Insights and Further Improvements. ISMRM, 2018.
113. Chang Y, Cauley S, Liu W, Polak D, Gagoski B, Bilgic B, **Setsompop K**, Polimeni J. Quantitative assessment of automatic cortical surface reconstructions from Wave-CAIPI MPRAGE: A validation study. ISMRM, 2018.
114. Yoon J, Ko J, Lee J, Jung H, Bilgic B, **Setsompop K**, Lee J. Quantitative susceptibility mapping using deep neural network. ISMRM, 2018.
115. Mekkaoui C, Edlow B, Kostis W, Jackowski M, **Setsompop K**, Witzel T, Fan Q, Ohringer N, Cabrera J, Reese T, Wu O, Huang S. Ribbon Tractography Reveals Reorientation of White Matter in the Corpus Callosum Following Severe Traumatic Brain Injury. ISMRM, 2018.
116. Sengupta S, **Setsompop K**, Grissom W. Shuttered EPI Brain Imaging at 7 Tesla. ISMRM, 2018.
117. Grøvik E, Emblem K, Digernes I, Nilsen L, Eichner C, Jafari K, Witzel T, Vachha B, Gerstner E, Kalpathy-Cramer J, **Setsompop K**, Stufflebeam S. Template maps of vascular function and structure in the healthy brain. ISMRM, 2018.
118. Kettinger A, Hermann P, Vakli P, Blaimer M, **Setsompop K**, Kannengiesser S, Breuer F, Vidnyanszky Z. Using Virtual Conjugate Coil reconstruction for statistical improvement in highly accelerated Simultaneous Multislice fMRI. ISMRM, 2018.
119. Wu Z, Bilgic B, He H, Sun Y, Du Y, **Setsompop K**, Zhong J. Zero-padding reconstruction for wave-CAIPI images with improved accuracy, and its application in ViSTa myelin water images. ISMRM, 2018.

## 2017

120. Wang H, Polimeni J, Bilgic B, Wald LL, **Setsompop K**. Analytical G-Factor Calculation for Slice-GRAPPA with Dual “Even-Odd” Kernels (SG-DK). ISMRM, 2017.
121. Aigner C, Rund A, Bilgic B, Gagoski B, **Setsompop K**, Kunisch K, Stollberger R. Application of Time-Optimal Simultaneous Multi-Slice Refocusing to TSE/RARE. ISMRM, 2017.
122. Bilgic B, Zhao B, Chatnuntawech I, Wald LL, **Setsompop K**. Calibrationless Parallel Imaging in Multi Echo/Contrast Data. ISMRM, 2017.
123. Mekkaoui C, Jackowski M, **Setsompop K**, Fan Q, Ohringer N, Kostis W, Reese T, Golby A, Huang S. Characterization of White Matter Tortuosity Using High-Resolution GSlider-SMS Diffusion Imaging. ISMRM, 2017.
124. Poser BA, Bilgic B, Gagoski B, Uludag K, Stenger VA, Wald LL, **Setsompop K**. Echo-Planar Imaging with Wave-CAIPI Acquisition and Reconstruction. ISMRM, 2017.
125. Haldar J, **Setsompop K**. Fast High-Resolution Diffusion MRI Using GSlider-SMS, Interlaced Subsampling, and SNR-Enhancing Joint Reconstruction. ISMRM, 2017.
126. Conklin J, Witzel T, **Setsompop K**. High-Resolution Intravoxel Incoherent Motion (IVIM) with Generalized SLIce Dithered Enhanced Resolution Simultaneous MultiSlice (GSlider-SMS): Effect on CSF Partial Volume Contamination. ISMRM, 2017.
127. Fischì-Gomez E, Huang S, Zhang H, **Setsompop K**. In-Vivo Whole-Brain Neurite Orientation Dispersion and Density Imaging at Sub-Millimeter Scale Using GSlider-SMS. ISMRM, 2017.

128. Bilgic B, Witzel T, Bhat H, Wald LL, **Setsompop K**. Joint Reconstruction of Phase-Cycled Balanced SSFP with Constrained Parallel Imaging. ISMRM, 2017.
129. Zhao B, Bilgic B, Stockmann J, Wald LL, **Setsompop K**. A Maximum Likelihood Approach to Simultaneous Multislice Magnetic Resonance Fingerprinting. ISMRM, 2017.
130. Ma J, Witzel T, Grissom W, **Setsompop K**. Minimum Peak Power Root-Flipped GSlider-SMS RF Pulses for High-Resolution in Vivo Diffusion imaging. ISMRM, 2017.
131. Littin S, **Setsompop K**, Jia F, Yu H, Kroboth S, Zaitsev M. Simultaneous Multi Slice Imaging Using Matrix Gradient Coils. ISMRM, 2017.
132. Yang A, Jiang Y, Ma D, **Setsompop K**, Gulani V, Griswold M. Simultaneous Multislice MRF with Hadamard RF-Encoding. ISMRM, 2017.
133. Ye H, Liao C, Li Q, Cao X, Zhao B, Bilgic B, **Setsompop K**, He H, Liu H, Zhong J. Spiral-Out and -In Double Echoes (SOIDE) Magnetic Resonance Fingerprinting with Improved T2 Mapping. ISMRM, 2017.
134. Keil B, Sappo C, Bilgic B, Polimeni J, Golestanirad L, Etzel R, Wald LL, Feinberg D, **Setsompop K**. Sub-Millimeter Cortical Imaging at 7T Using a High-Density Motor-Cortex 32-Channel Array Coil. ISMRM, 2017.
135. Polak D, **Setsompop K**, Cauley S, Gagoski B, Batt H, Maier B, Wald LL, Bilgic B. Wave-CAIPI for Highly Accelerated MP-RAGE Imaging. ISMRM, 2017.
136. Wu Z, Bilgic B, He H, Sun Y, **Setsompop K**, Zhong J. Wave-CAIPI ViSTa: Accelerated Mapping for Direct Visualization of Myelin Water. ISMRM, 2017.
137. Kim Th, Bilgic B, Polak D, **Setsompop K**, Haldar J. Wave-LORAKS for Faster Wave-CAIPI MRI.
138. Kimura M, **Setsompop K**, Cauley S, Gagoski B, Gasparetto E. Use and Radiological Interpretation of a Rapid-SWI Acquisition Based on the Wave-CAIPI Technology in a Clinical Setting. ASNR, 2017.
139. Fisci-Gomez E, Bonnier G, Romascano D, Daducci A, **Setsompop K**, Thiran JP, Krüger G, Granziera C. Longitudinal study of MS lesion evolution using neurite orientation dispersion and density imaging, relaxometry and magnetization transfer imaging. ECTIMRS/ACTRIMS, 2017.
140. Kettinger AO, Kannengiesser S, Breuer FA, Vidnyanszky Z, **Setsompop K**, Blaimer M. Combining Virtual Conjugate Coil reconstruction with partial Fourier imaging for maximized utilization of k-space conjugate symmetry. ESMRMB, 2017.
141. Lewis LD, Polimeni JR, **Setsompop K**, Stickgold R, Bonmassar G, Rosen BR. Tracking fluctuating thalamocortical dynamics during the transition into sleep through high temporal resolution neuroimaging. SFN, 2017.

### Local Invited Presentations

- |                     |  |
|---------------------|--|
| 2012                | Efficient Diffusion Imaging Acquisition, Brain-mapping seminar, Athinoula A. Martinos center, MGH  |
| 2013                | Simultaneous MultiSlice techniques for efficient Diffusion and fMRI acquisition, Fetal-Neonatal Neuroimaging & Developmental Science Center (FNNDSC), Boston Children's Hospital |
| 2015, 2016,<br>2017 | Advanced MR Imaging: Multi-Channel; Multi-Slice, MGH Radiology resident Noon Lecture series  |
| 2017                | Wave-CAIPI, Pediatric Neuro-Oncology group, Boston Children's Hospital   |

### Invited Presentations and Courses

#### *National*

No presentations below were sponsored by outside entities.

- 2010 Simultaneous multi-slice imaging techniques for human brain connectivity mapping, Langone Medical Center, New York University
- 2015 Advanced Parallel Imaging for high-quality order of magnitude acceleration in MRI brain acquisition, Kennedy Krieger Institute, Johns Hopkins
- 2015 Blipped-CAIPI and Wave-CAIPI: techniques for order of magnitude acceleration in MRI, General Electric research center, Milwaukee
- 2015 Advanced Parallel Imaging for brain MRI acquisitions, Medical Imaging Seminar Series, University of Southern California
- 2015 Technologies for Order of Magnitude Acceleration in MRI brain Acquisitions, Functional Magnetic Resonance Facility (fMRI), National Institute of Health (NIH)
- 2016 Rapid Brain MRI; more speed and more information, University of Southern California
- 2019 New Directions in MRI through Tailored Acquisitions, Langone Medical Center, New York University
- 2019 New Directions in MRI through Tailored Acquisitions, Radiological Sciences Laboratory (RSL), Stanford University
- 2020 Fast MR Imaging of the Brain, Annual symposium, UT Southwestern medical center
- 2021 Accelerated MRI through smarter encoding for more speed and more information. Molecular Imaging Program at Stanford (MIPS) Faculty meeting (April 2021)
- 2021 Efficient encoding approaches for brain MRI. Stanford Vision Brunch seminar (June 2021)

### *International*

No presentations below were sponsored by outside entities.

- 2007 High flip angle slice selective Parallel RF Excitation on an 8-channel system at 3T, (*selected from abstracts*), ISMRM annual meeting, Berlin, Germany
- 2007 In vivo Parallel RF Excitation with  $B_0$  correction, (*selected from abstracts*), ISMRM annual meeting, Berlin, Germany
- 2007 Sparse spokes slice selective design for  $B_1$  inhomogeneity correction at 7T, (*selected from abstracts*), ISMRM annual meeting, Berlin, Germany
- 2008 Uniform Wideband Slab Selection with  $B_1^+$  Mitigation at 7T via Parallel Spectral-Spatial Excitation, (*selected from abstracts*), ISMRM annual meeting, Toronto, Ontario, Canada
- 2009 Design Algorithms for Parallel RF transmission in Magnetic Resonance Imaging; seminar at the Singapore Bioimaging Consortium (SBIC), Singapore
- 2010 Multislice acquisition via Blipped CAIPIRINHA, Invited talk, FMRI, Univ. of Oxford, Oxford, UK
- 2010 Improving SNR per unit time in Diffusion Imaging using a blipped-CAIPIRINHA simultaneous multislice EPI acquisition, (*selected from abstracts*), ISMRM annual meeting, Stockholm, Sweden
- 2010 Blipped CAIPIRHINA for simultaneous multi-slice EPI with reduced g-factor penalty, (*selected from abstracts*), ISMRM annual meeting, Stockholm, Sweden
- 2011 Wave-CAIPIRHINA: a method for reducing g-factors in highly accelerated 3D acquisitions, (*selected from abstracts*), ISMRM annual meeting, Montreal, Canada
- 2011 Efficient data acquisition in MRI; IEEE section of the Republic of Macedonia, Faculty for Electrical Engineering and Information Technologies, University Ss. Cyril and Methodius, Skopje, Macedonia

- 2011 Introduction to Diffusion MRI, MR-Balkan, International Society of Magnetic Resonance in Medicine Conference global outreach program, Ohrid, Republic of Macedonia
- 2012 Efficient data acquisition in MRI, Chiang Mai University, Thailand
- 2012 Whole-brain DSI in 4 minutes: sparse sampling in q-space with simultaneous multi-slice acquisitions, (*selected from abstracts*), ISMRM annual meeting, Melbourne, Australia
- 2012 Introduction to Diffusion MRI, MCT 2012, International Society of Magnetic Resonance in Medicine Conference global outreach program, Bangkok, Thailand
- 2013 Characterization of Artifactual Correlation in Highly-Accelerated Simultaneous Multi-Slice (SMS) fMRI Acquisitions, (*selected from abstracts*), ISMRM annual meeting, Salt Lake City, U.S.A.
- 2013 fMRI & Diffusion of the Whole Brain at 7T, Invited Talk, ISMRM workshop on Ultra High Field MRI, Noordwijk aan Zee, The Netherlands
- 2013 Simultaneous MultiSlice acquisition and reconstruction; invited talk at Nijmegen-Maastricht Brain Imaging Symposium, Nijmegen, The Netherlands
- 2013 Ultra-Fast diffusion and resting-state fMRI imaging with Simultaneous Multi-Slice EPI and Q-space compressed sensing; Invited Talk, International Biomedical and Astronomical Signal Processing (BASP) Frontiers workshop, Switzerland
- 2013 Accelerated DSI and Efficient Acquisition of MR Connectomics Data, invited talk, Center of Magnetic Resonance Research (CMMR), 9th Biennial Minnesota Workshops on High and Ultra-high Field Imaging, University of Minnesota
- 2014 Simultaneous MultiSlice Imaging for Rapid fMRI, invited talk, the ISMRM workshop on functional MRI: Emerging techniques and new interpretations, South Carolina
- 2014 Simultaneous Multi-Slice Acquisition for Connectomic Applications and Beyond; invited talk, Siemens Lunch Symposium, Annual meeting of the Organization of Human Brain Mapping (OHBM)
- 2014 Parallel Transmission in MRI, and Simultaneous Multi-Slice Acquisition; invited talk, 3<sup>rd</sup> MR-Balkan Outreach program, International Society of Magnetic Resonance in Medicine Conference global outreach program, Ankara, Turkey
- 2014 High-speed acquisition of QSM and STI with Wave-CAIPI; invited talk at the 3rd International Workshop on Phase Contrast and Quantitative Susceptibility Mapping (QSM), Duke University, North Carolina
- 2014 Parallel imaging & Simultaneous Multi-Slice; invited talk at IntelligentMR educational session, Annual meeting of the Medical Image Computation Computer Assist Intervention (MICCAI), Boston
- 2015 Advanced Parallel Imaging for rapid MRI exam; invited talk at Magnetic Resonance in South East Asia workshop, Singapore
- 2015 Advanced Parallel Imaging for rapid MRI exam; invited talk at Duke-NUS graduate medical school, Singapore
- 2015 Wave-CAIPI for an order of magnitude acceleration in MRI acquisition; invited talk at the international biomedical and astronomical signal processing (BASP) Frontiers workshop, Switzerland
- 2015 SLIce Dithered Enhanced Resolution Simultaneous MultiSlice (SLIDER-SMS) for High Resolution (700  $\mu$ m) Diffusion Imaging of the Human Brain; (*selected from abstracts*), ISMRM annual meeting, Toronto, Canada

- 2015 Overview of SMS reconstruction; invited talk at ISMRM Workshop on Simultaneous Multi-Slice Imaging: Neuroscience & Clinical Applications, Pacific Grove, U.S.A.
- 2015 Towards Routine Sub-Millimeter Diffusion Imaging with Slider-SMS; invited talk at ISMRM Workshop on Simultaneous Multi-Slice Imaging: Neuroscience & Clinical Applications, Pacific Grove, U.S.A.
- 2016 Generalized SLIce Dithered Enhanced Resolution Simultaneous MultiSlice (gSlider-SMS) to increase volume encoding, SNR and partition profile fidelity in high-resolution diffusion imaging (*selected from abstracts*), ISMRM annual meeting, Singapore
- 2016 A New Generation of Accelerated Imaging: Smarter Encoding in the Quest for Speed; invited for ISMRM NIBIB New Horizons plenary lecture, ISMRM annual meeting, Singapore
- 2016 Rapid Brain MRI; more speed and more information; invited talk for the Gordon Research Conference on In Vivo Magnetic Resonance, New Hampshire
- 2016 Advance in acquisition software and hardware for diffusion imaging; invited talk for Toward a Super-Big Brain Workshop: Promises and Pitfalls of Microstructural Imaging, Montreal, Canada
- 2016 Rapid Brain MRI; more speed and more information; SFB workshop on Imaging with Modulated/Incomplete Data, Graz, Austria
- 2017 MRI and the Quest for Speed; invited Plenary lecture for SMRT 26<sup>th</sup> annual meeting; Hawaii
- 2017 A new generation of accelerated imaging: smarter encoding in the quest for speed; Invited talk at SKKU-Siemens High-Speed Neuro Imaging Symposium; Seoul, Korea
- 2017 Pushing the spatial and temporal resolutions of brain MRI; 3<sup>rd</sup> SIAT MR Workshop in Shenzhen, Shenzhen Institutes of Advanced Technology (SIAT), Chinese Academy of Sciences; China
- 2018 Efficient dMRI acquisition; invited talk at the Axon diameter diffusion MRI workshop; Paris
- 2020 New directions in MRI through tailored acquisitions; invited talk at the Wellcome Centre for Integrative Neuroimaging; Oxford University; (Virtual)
- 2021 Emerging fMRI methods for improved neuronal specificity; NIH Brain initiative workshop on Transformative Non-Invasive Imaging Technologies, Feb 2021.

Those presentations below sponsored by outside entities are so noted and the sponsor appears in parentheses.

- 2016 Technologies for Order of Magnitude Acceleration in MRI brain Acquisitions, Samsung Healthcare, Seoul, South Korea (SAMSUNG)
- 2016 Rapid Brain MRI; more speed and more information; invited talk for the Siemens MAGNETOM user meeting at the ISMRM, Singapore (SIEMENS)
- 2017 Rapid MRI: more speed and more information; Invited talk at Siemens Neurology Symposium; Seoul, Korea (SIEMENS)
- 2018 Advances in Rapid Neuro MRI; Invited talk at Siemens Magnetom World Summit, Bamberg, Germany (SIEMENS)
- 2018 Rapid Neuro MRI; invited talk for the Siemens MAGNETOM user meeting at the ISMRM, Paris (SIEMENS)

## VII. Patents

**Total patent licensing fee generated:** \$4 M with on-going royalty income (GE, Phillips, Samsung, United Imaging, Bruker). The Blipped-CAIPI method (patent no. 8405395) has been distributed to more than 200 research institutes worldwide for use in fMRI and diffusion imaging studies. GE, Phillips, and Siemens have incorporated this technology into their latest FDA-approved acquisition software for all of their MRI scanners. Siemens have also released an FDA-approved acquisition software product based on the Wave-CAIPI method (patent no. 8981776)

### Granted patent application (32)

- 2008 Patent no. US7336145 *Method for designing RF excitation pulses in magnetic resonance tomography*, Inventors = Zelinski, Adalsteinsson, Setsompop, Wald, Fontius
- 2011 Patent no. US8076939 *Method for Fast Magnetic Resonance Radiofrequency Coil Transmission Profile Mapping*. Inventors = Setsompop, Alagappan, Adalsteinsson, Wald.
- 2011 Patent no. US8085044 *Method for producing spectral-spatial parallel RF excitations for magnetic resonance imaging*. Inventors = Setsompop, Alagappan, Gagoski, Wald, Adalsteinsson
- 2012 Patent no. US8148985 *Method for Reducing Maximum Local Specific Absorption Rate in Magnetic Resonance Imaging*. Inventors = Zelinski, Setsompop, Adalsteinsson, Goyal
- 2013 Patent no. US8405395 *Method for Simultaneous Multi-slice Magnetic Resonance Imaging*. Inventors = Setsompop, Wald
- 2014 Patent no. US8866478 *Method and processor and magnetic resonance apparatus for designing RF pulses to mitigate off-resonance effects*. Inventors = Adalsteinsson, Fautz, Setsompop, Wald
- 2015 Patent no. US8981776 *Method for magnetic resonance imaging with controlled aliasing*. Inventors = Setsompop, Wald
- 2015 Patent no. US9081055 *Method for Reducing Local Specific Absorption Rate in Magnetic Resonance Imaging Using Radio Frequency Coil Array Dark Modes*. Inventors = Setsompop, Wald
- 2017 Patent no. US9542763 *Systems and methods for fast reconstruction for Quantitative Susceptibility Mapping using Magnetic Resonance Imaging*. Inventors = Setsompop, Bilgic
- 2017 Patent no. US9778336 *System and method for rapid, multi-shot segmented magnetic resonance imaging*. Inventors = Polimeni, Wald, Setsompop
- 2017 Patent no. US9588208 *Methods, systems and apparatuses for rapid segmented, accelerated, and simultaneous multi-slice echo planar imaging*. Inventors = Polimeni, Bhat, Heberlein, Setsompop, Witzel, Cauley
- 2018 Patent no. US10126397 *Systems and methods for fast magnetic resonance image reconstruction using a hierarchically semiseparable solver*; Inventors = Cauley, Bilgic, Setsompop, Wald
- 2018 Patent no. US9964616B2 *Fast group matching for magnetic resonance fingerprinting reconstruction*; Inventors = Cauley, Griswold, Setsompop, Wald
- 2018 Patent no. US9897675B2 *Magnetic resonance fingerprinting (MRF) with simultaneous multivolume acquisition*; Inventors = Setsompop, Griswold, Ye, Wald, Ma, Jiang
- 2019 Patent no. US10302727B2 *System and method for high resolution diffusion imaging*; Inventors = Rathi, Ning, Michailovich, Setsompop
- 2019 Patent no. US10436866B2 *Simultaneous multislice MRI with random gradient encoding*; Inventors = Setsompop, Bilgic, Wald
- 2019 Patent no. US10310042B2 *Hierarchical mapping framework for coil compression in magnetic resonance image reconstruction*; Inventors = Cauley, Polimeni, Setsompop, Wald
- 2019 Patent no. US10175328B2 *System and method for reconstructing ghost-free images from data acquired using simultaneous multislice magnetic resonance imaging*; Inventors = Hoge, Polimeni, Setsompop

- 2019 Patent no. US10324149B2 *Systems and methods for generalized slice dithered enhanced resolution magnetic resonance imaging*; Inventors = Setsompop, Stockmann, Wald, Witzel
- 2019 Patent no. US10241176B2 *Systems and methods for statistical reconstruction of magnetic resonance fingerprinting data*; Inventors = Zhao, Setsompop, Wald
- 2019 Patent no. US10345409B2 *System and method for simultaneous multislice excitation using combined multiband and periodic slice*; Inventors = Eichner, Wald, Setsompop
- 2019 Patent no. US10408910B2 *Systems and methods for joint trajectory and parallel magnetic resonance imaging optimization for auto-calibrated image reconstruction*; Inventors = Cauley, Setsompop, Wald
- 2019 Patent no. US10429475B2 *Method for increasing signal-to-noise ratio in magnetic resonance imaging using per-voxel noise*; Inventors = Polimeni, Setsompop, Wald
- 2020 Patent no. US10598747 *System and method for simultaneous multislice magnetic resonance fingerprinting with variable radio frequency encoding*; Inventors = Gulani, Griswold, Yang, Jiang, Setsompop
- 2020 Patent no. US10605882 *Systems and methods for removing background phase variations in diffusion-weighted magnetic resonance imaging*; Inventors = Eichner, Setsompop, Wald, Cauley
- 2020 Patent no. US20200249301 *Reconstruction of Magnetic-Resonance Datasets using Machine Learning*; Inventors = Polak, Setsompop
- 2020 Patent no. US20200341094 *Multi-contrast MRI Imaging Reconstruction using Machine Learning*; Inventors = Polak, Setsompop
- 2020 Patent no. US10871534 *Accelerated magnetic resonance imaging using tilted reconstruction kernel in phase encoded and point spread function encoded k-space*; Inventors = Setsompop, Wald, Dong, Guo, Wang, Reese
- 2021 Patent no. US10895622 *Noise suppression for wave-CAIPI*; Inventors = Polak, Raithel, Setsompop
- 2021 Patent no. US10901061 *Accelerated diffusion-weighted magnetic resonance imaging with self-navigated, phase corrected tiled kernel reconstruction of phase encode and point spread function encoded k-space*; Inventors = Setsompop, Wald, Dong, Guo, Wang, Reese
- 2021 Patent no. US10908248 *Systems and methods for slice dithered enhanced resolution simultaneous multislice magnetic resonance imaging*; Inventors = Setsompop, Bilgic, Wald, Witzel
- 2021 Patent no. US11009675 *Method for simultaneous time-interleaved multislice magnetic resonance imaging*; Inventors = Bilgic Setsompop, Polak, Ye, Wald

**Patent applications in pending/processing: ~15 additional pending applications**