Amanda J. Taylor, Ph.D.

Curriculum Vitae

University of St. Thomas
Houston, TX

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Education

Postdoctoral Associate — June 2016–Jan 2021
High-resolution Brain Imaging Lab (HIRBIL), Baylor College of Medicine, Houston, TX
Neuroscience research using Functional Magnetic Resonance Imaging

Ph.D. in Physics (Photonics option) — July 2015
Oklahoma State University, Stillwater, OK
Thesis: "Structural and chemical studies of bone using solid-state nuclear magnetic resonance"

B. Sc. in Engineering-Physics (Science option), Honors College — May 2009
Southern Arkansas University, Magnolia, AR

Teaching Experience

Assistant Professor, Department of Physics and Engineering — Aug 2021–Present
University of St. Thomas, Houston, TX
Physics I, Electrical Circuits, Astronomy Lab, Electromagnetism,
Introduction to Engineering, Modern Physics Lab

Visiting Instructor, Department of Physics and Engineering — Aug 2019–Aug 2021
University of St. Thomas, Houston, TX
General Physics I, Electrical Circuits and Lab, Astronomy Lab,
Electromagnetism

Teaching assistant — Fall 2017
Baylor College of Medicine & Rice University
Fundamentals of NeuroImaging

Adjunct Instructor — June 2011–May 2016
Southern Arkansas University, Magnolia, AR
Astronomy, Physical Science and Lab, Physics Labs

Adjunct Instructor — Aug 2015–Dec 2015
Northeastern State University, Tahlequah, OK
General Biology and Lab

Teaching Assistant — Aug 2009–May 2015
Oklahoma State University, Stillwater, OK
University Physics II Recitations and General Physics I Lab

Adjunct Instructor — Spring 2014
Oklahoma State University, Stillwater, OK
Designed and instructed "Descriptive Physics" for non-science majors

Teaching Assistant — Aug 2008–Aug 2010
Southern Arkansas University, Magnolia, AR
Physics Labs

Research and Work Experience

Research Associate — Jan 2021–Present
HIRBIL, Baylor College of Medicine, Houston, TX
Neuroscience research using Functional Magnetic Resonance Imaging

Postdoctoral Associate — June 2016– Jan 2021
HIRBIL, Baylor College of Medicine, Houston, TX
Neuroscience research using Functional Magnetic Resonance Imaging

Graduate Research Assistant — Aug 2010–July 2015
Oklahoma State University, Stillwater, OK
Biophysics research using Solid-State Nuclear Magnetic Resonance Spectroscopy

Tutor — Jan 2008–May 2015
Physics and Engineering subjects, high school and university levels

Intern (FAST program) — June–Aug 2009
Lawrence Berkeley National Laboratory, Berkeley, CA
Designed and built muon and gamma ray detectors

Drafter — June 2008–Apr 2009
Spencer-Harris Machine Shop, Magnolia, AR
Used CAD to draw heat exchangers and oilfield equipment

Machinist apprentice — June 2003–Aug 2007
United Machine Works, El Dorado, AR
Operated CNC milling machines, drill and punch presses, injection molding

Other advanced training

Kentek, Laser Safety Training (Online certification), 2024
Siemens IDEA Sequence Programming (MR8SDE), Cary, North Carolina, 2018
Siemens IDEA Imaging Calculation Programming (MR8ICE), Cary, North Carolina, 2018
NIH Regional Seminar on Program Funding and Grants, New Orleans, Louisiana, 2017
MGH/MIT/HMS FreeSurfer Tutorial and Workshop, Boston, Massachusetts, 2016
OSU Infrared Structural Biology Workshop, Stillwater, Oklahoma, 2013

Publications

N.J. Fesharaki, A. Taylor, and D. Ress, 2026, "Age-related variations of the hemodynamic response function spatially resolved across human cerebral cortex," *Frontiers in Aging Neuroscience,* vol 18:1774543, doi: 10.3389/fnagi.2026.1774543.

N.J. Fesharaki, A. Taylor, K. Mosby, R. Li, J.H. Kim, D. Ress, 2024, "Global impact of aging on the hemodynamic response function in the gray matter of human cerebral cortex," *Human Brain Mapping*, vol 45(18), doi: 10.1002/hbm.70100.

A.J. Taylor, J.H. Kim, D. Ress, 2022, "Temporal stability of the hemodynamic response function across the majority of human cerebral cortex," *Human Brain Mapping*, vol 43, pp. 4924–4942, doi: 10.1002/hbm.26047.

J.H. Kim, A.J. Taylor, M. Himmelbach, G.E. Hagberg, K. Scheffler, D. Ress, 2022, "Characterization of the blood oxygen level dependent hemodynamic response function in human subcortical regions with high spatiotemporal resolution," *Frontiers in Neuroscience*, vol. 16, doi: 10.3389/fnins.2022.1009295.

N. de la Rosa-Rivera, D. Ress, A.J. Taylor, J.H. Kim, 2021, "Retinotopic variations of the the negative blood oxygen-level dependent hemodynamic response function in human primary visual cortex," *Journal of Neurophysiology*, vol. 125(4), pp. 1045–1057, doi: 10.1152/jn.00676.2020.

A.J. Taylor, J.H. Kim, V. Singh, E.J. Halfen, J. Pfeuffer, D. Ress, 2019, "More than BOLD: Dual-spin populations create functional contrast," *Magnetic Resonance in Medicine*, vol. 83(2), pp. 681-694, doi: 10.1002/mrm.27941.

A.J. Taylor, J.H. Kim, D. Wang, X. Zou, D. Ress, 2019, "Dynamics of the cerebral blood flow response to brief neural activity in human visual cortex," *J Cerebral Blood Flow and Metabolism*, doi:10.1177/0271678X19869034.

A.J. Taylor, J.H. Kim, D. Ress, 2018, "Characterization of the hemodynamic response function across the majority of human cerebral cortex," *NeuroImage*, vol. 173, pp. 322-331, doi: 10.1016/j.neuroimage.2018.02.061.

J.H. Kim, A. Taylor, D. Ress, 2017, "Simple signed-distance function depth calculation applied to measurement of the fMRI BOLD hemodynamic response function in human visual cortex," In: Barneva R., Brimkov V., Tavares J. (eds) "Computational Modeling of Objects Presented in Images. Fundamentals, Methods, and Applications". CompIMAGE 2016. *Lecture Notes in Computer Science*, Springer, Cham, vol. 10149, pp. 216-228, doi: 10.1007/978-3-319-54609-4_16.

J. Morrison, S. Dai, S, J. Ren, A. Taylor, M. Wilkerson, G. John, A. H. Xie, 2014, "Structure and stability of an azoreductase with an FAD cofactor from the strict anaerobe Clostridium perfringens, " *Protein and Peptide Letters*, vol. 21(6), pp. 523-534, doi: 10.2174/09298665210614042512061 4.

A.J. Taylor, E. Rendina, B.J. Smith, D.H. Zhou, 2013, "Analyses of mineral specific surface area and hydroxyl substitution for intact bone," *Chemical Physics Letters*, vol. 588, pp. 124-130, doi: 10.1016/j.cplett.2013.09.061.

A.J. Taylor, A.G. Bachri, A. Goldschmidt, (accepted 2009), "Muon and gamma ray detection," United States Department of Energy, *Journal of Undergraduate Research* (discontinued).

Recent abstracts and presentations

L. Dysarz, J. Gutierrez, J. Kong, "Verdet Constant." UST Research Symposium, University St. Thomas, Houston, April 2025.

L. Dysarz, "Strain Analysis of the Musical Saw." UST Research Symposium, University St. Thomas, Houston, April 2024.

L. Dysarz, O. Zavala, A. Taylor, "Analysis of 2D standing waves of trapezoidal Chladni plates." UST Research Symposium, University St. Thomas, Houston, April 2023.

A. Taylor, "Use of MRI to assess changes in brain functionality after injury." UST Faculty Research Presentation, Doherty Library, University St. Thomas, Houston, April 2022.

A. Taylor, X. Zou, J.H. Kim, D. Ress, "Temporal stability of the hemodynamic response function in human cortex." Program 501.20. Chicago, IL: Society for Neuroscience, Oct 2019.

A.Taylor, J.H. Kim, V. Singh, J. Pfeuffer, D. Ress, "Dual spin populations create functional contrast in human fMRI." Program No. W353. Rome, Italy: Organization for Human Brain Mapping, June 2019.

A. Taylor, Q. Asma, X. Zou, H. Levin, "Assessment of traumatic brain injury by measurement of neurovascular coupling." Houston, TX: Advancing Sports Medicine Symposium, May 2019.

A. Taylor, X. Zhou, J.H. Kim, D. Ress, "Longitudinal study of BOLD HRF in human cortex." Program No. 3765. Montreal, Canada: International Society for Magnetic Resonance in Medicine, May 2019.

A. Taylor, J.H. Kim, D. Ress, "Dual-component model explains non-classical BOLD fMRI contrast." Program 8189. San Diego, CA: Society for Neuroscience, Nov 2018.

N. De la Rosa, E. Halfen, A. Taylor, J.H. Kim, D. Ress, "Characterization and modeling of the negative hemodynamic response function in human early visual cortex." Galveston, TX: Rush and Helen Record Neuroscience Forum, Feb 2018.

A. Taylor, D. Ress, J.H. Kim, "Characterization of gray matter hemodynamic response function in mild traumatic brain injury." Program 603.21. Washington, DC: Society for Neuroscience, Nov 2017.

A. Taylor, J.H. Kim, D. Ress, "Characterization of the Gray Matter Hemodynamic Response Function with High-Resolution Functional MRI," Program No. 5343. Honolulu, HI: International Society for Magnetic Resonance in Medicine, Apr 2017.

J.H. Kim, A. Taylor, D. Ress, "Estimation of Cerebral Metabolic Rate of Oxygen from Measured Hemodynamic Response Function and Cerebral Blood Flow Using Arterial Spin Labeling," Program No. 1660. Honolulu, HI: International Society for Magnetic Resonance in Medicine, Apr 2017.

A. Taylor, "Characterization of HRF across human cerebral cortex." Galveston, TX: Rush and Helen Record Neuroscience Forum, Feb 2017.

Awards and Activities

RSO Advisor of the Year, University St. Thomas, Houston, 2024 – 2025
RSO Advisor of the Year, University St. Thomas, Houston, 2022 – 2023
Outstanding Recitation Teaching Assistant Award, Oklahoma State University, Spring 2010
Doctoral Fellowship, Oklahoma State University, 2009 – 2011

Representative, Grad. and Prof. Student Government Assoc., Oklahoma State University, 2009 – 2010
Secretary, Society of Physics Students, Oklahoma State University, 2009 – 2010
Outstanding Student in Science and Technology, Southern Arkansas University, Spring 2009

References

David Ress, Ph.D.
Associate Professor of Neuroscience
Baylor College of Medicine, Houston, TX
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Jung Hwan Kim, Ph.D.
Assistant Professor of Neuroscience
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Richard R. Rodgers, Ph.D., P.E.
Structural Engineer
New Millennium Building Systems, Hope, AR
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