

Marissa A. DiPiero

Ph.D. Student
610-787-1978
dipiero@wisc.edu

EDUCATION

University of Wisconsin-Madison, Madison, Wisconsin August 2019- Present

- PhD student, Neuroscience Training Program

Saint Joseph's University, Philadelphia, Pennsylvania August 2013- May 2017

- B.S., Biology

RESEARCH AND LABORATORY EXPERIENCE

Graduate Research Assistant March 11, 2020
Neuroscience Training Program, University of Wisconsin-Madison
Waisman Center, Madison, WI
PhD Supervisor: Douglas Dean, Ph.D.

- Magnetic Resonance Imaging (MRI) data acquisition and analysis of early brain development
- Assessing age-related cortical gray matter alterations related to Autism Spectrum Disorder (ASD)
- Assessing age-related changes of cortical brain development (ages 0-to-10 years)
- Assessing environmental impact of inflammatory markers on cortical brain development in infants and toddlers
- Developing methods for improved cortical microstructural assessment of gray matter in young infants

Research Assistant June 2017-August 2019
Department of Radiology Lurie Family Foundations MEG Imaging Center
The Children's Hospital of Philadelphia, Philadelphia, PA
Supervisor: J. Christopher Edgar, Ph.D., Timothy P.L. Roberts, Ph.D.

- Magnetoencephalography (MEG) and MRI data acquisition and analysis for typically developing children and children with neurodevelopmental disorders
- Training in behavioral support for toddlers and school-age children with developmental/neurological disorders to support completion of MEG and MRI exams
 - Developmental disorders include children with ASD, Down syndrome, Intellectual and Developmental Disabilities, Language Impairments, XYY Syndrome
- Experience in MEG and MRI data analysis of teenagers with mild traumatic brain injury
- Experience in MEG data acquisition of typically developing infants

Undergraduate Research Assistant September 2016- May 2017
Department of Biology
Saint Joseph's University, Philadelphia, PA
Research Advisor: Jennifer Tudor, Ph.D.
Project: Examination of the neural protein dendrin in sleep-deprived mice

- Applied western blot technique to examine the presence of dendrin in brain tissue of sleep deprived mice

Undergraduate Research Assistant

September 2015- May 2017

Department of Biology

Saint Joseph's University, Philadelphia, PA

Research Advisor: Scott McRobert, Ph.D

Project: An analysis of female postcopulatory behavior in *Drosophila suzukii* and *Drosophila biarmipes*

- Performed life history analyses of the invasive fruit fly, *Drosophila suzukii*

Animal Care Technician

September 2015- May 2017

Department of Biology

Saint Joseph's University, Philadelphia, PA

Research Advisor: Scott McRobert, Ph.D

- Provided animal care for Biodiversity Laboratory for a large range of species including exotic/endangered fish, reptiles, and amphibians
- Maintained lab and habitat conditions to uphold IACUC standards
- Maintained *Drosophila* stocks

Summer Scholars Program

May 2016- August 2016

Saint Joseph's University, Philadelphia, PA

Research Advisor: Scott McRobert, Ph.D

- Examined the life history and female postcopulatory behavior of an invasive species of *Drosophila*, *D. Suzukii*
- Maintained Biodiversity Laboratory and upheld IACUC standards for over 400 animals

TEACHING EXPERIENCE

Graduate Teaching Assistant

January 2021 – March 2022

Multi-Modal Imaging of Human Brain Development

Neuroscience Training Program

University of Wisconsin-Madison, Madison, WI

Professor: Douglas Dean, Ph.D

- Assisted in class organization
- Assisted students in formulating presentations for lecture seminars
- Moderated lecture series
- Facilitated class discussions

Graduate Teaching Assistant – Methods of Neuroimaging

September 2020 – December 2020

Departments of Medical Physics &

Neuroscience Training Program

University of Wisconsin – Madison, Madison, WI

Professors: Douglas Dean, Ph.D, Andrew Alexander, Ph.D, Rasmus Birn, Ph.D.

- Assisted in conducting laboratory portion of course
- Aided students outside of class with questions/problems
- Graded assignments

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Undergraduate Teaching Assistant- Biology (Developmental Biology)

January 2016- May2017

Department of Biology

Saint Joseph's University, Philadelphia, PA

Professor: Eileen Grogan, Ph.D.

- Assisted in conducting laboratory portion of class by coordinating set up and execution of student research projects, proctoring exams and providing additional academic support for students outside of classroom

Teaching Assistant-Biology (Plant Physiological Ecology)

May 2016- May 2017

Department of Biology

Saint Joseph's University, Philadelphia, PA

Professor: Clint Springer, Ph.D.

- Managed stock of *Arabidopsis thaliana* for student's individual research projects
- Provided academic support to students outside of the classroom

Teaching Assistant-Chemistry (General Chemistry)

August 2015– December 2015

Department of Chemistry

Saint Joseph's University, Philadelphia, PA

Professor: Alexander Turfa, Ph.D.

- Enforced lab safety protocols
- Graded pre-lab reports and post-lab reports
- Aided professor in answering student questions in and outside of lab

RESEARCH PRESENTATIONS

Oral Presentations

**** Canceled due to COVID-19 Pandemic ****

2020 **DiPiero, M.**, Green, H.L., Koppers, S., Berman, J., Putt, M.E., Bloy, L., Liu, S., McBride, E., Ku, M., Blaskey, L., Kuschner, E., Airey, M., Kim, M., Roberts, T.P.L., Edgar, J.C.

“Brain structure differentially predicts resting-state peak alpha in typically developing children and children with autism spectrum disorder.”

2016 **DiPiero, M.**, Clark, R., Fingerut, J., and McRobert, S.

*“The life history of an Invasive Pest *Drosophila suzukii*” Annual Presentation of Summer Scholars Researchers, Saint Joseph's University, Philadelphia, Pennsylvania.*

Poster Presentations

2021 **DiPiero, M.**, Lainhart, J., Travers, B., Alexander, A., Dean, D.

“Gray Matter Based Spatial Statistics Shows Cortical Alterations in Individuals With Autism Spectrum Disorder” ISMRM & SMRT Annual Meeting & Exhibition

2019 **DiPiero, M.**, Berman, J., Ku, M., Blaskey L., Kuschner E., Kim M., Roberts T.P.L., Edgar J.C.

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“Abnormal maturation of alpha peak frequency in children with autism spectrum disorder may be explained by abnormal white matter maturation” International Society for Autism Research Annual Meeting, 2019, Montreal, Canada.

2018 **DiPiero, M.**, McBride, E., Berman, J., Ku, M., Liu, S., Blaskey, L., Kuschner, E., Koppers, S., Gaetz, W., Kim, M., Green, H., Roberts, T.P.L., Edgar, J.C. *“Abnormal Maturation of the peak alpha frequency in children with Autism Spectrum Disorder” 21st International Conference on Biomagnetism, BIOMAG2018, Philadelphia, Pennsylvania.*

2017 **DiPiero, M.**, Clark, R., Fingerut, J., and McRobert, S.
*“The Sexual Behavior and Life cycle of The Invasive Pest *Drosophila suzukii*” 29th Annual Sigma Xi Student Research Symposium, Saint Joseph’s University, Philadelphia, Pennsylvania.*

2016 **DiPiero, M.**, Clark, R., Fingerut, J., and McRobert, S.
*“The life history of an Invasive Pest *Drosophila suzukii*” 28th Annual Sigma Xi Student Research Symposium, Saint Joseph’s University, Philadelphia, Pennsylvania.*

PUBLICATIONS

Green HL, **Dipiero M**, Koppers S, Berman JI, Bloy L, Liu S, McBride E, Ku M, Blaskey L, Kuschner E, Airey M, Kim M, Konka K, Roberts TPL, Edgar JC. Peak Alpha Frequency and Thalamic Structure in Children with Typical Development and Autism Spectrum Disorder. *J Autism Dev Disord*. 2021 Feb 25. doi: 10.1007/s10803-021-04926-9. Epub ahead of print. PMID: 33629214.

Kuschner, E. S., Kim, M., Bloy, L., **Dipiero, M.**, Edgar, J. C., & Roberts, T. P. L. (2021). MEG-PLAN: A clinical and technical protocol for obtaining magnetoencephalography data in minimally verbal or nonverbal children who have autism spectrum disorder. *Journal of Neurodevelopmental Disorders*, 13(1), 8. <https://doi.org/10.1186/s11689-020-09350-1>.

Clark, R.D., **DiPiero, M.**, Fingerut, J.T. *et al.* An Analysis of Female Postcopulatory Behavior in *Drosophila suzukii* and *Drosophila biarmipes*. *J Insect Behav* **33**, 193–200 (2020). <https://doi.org/10.1007/s10905-020-09761-x>.

Edgar, J. C., Blaskey, L., Green, H. L., Konka, K., Shen, G., **Dipiero, M. A.**, ... Edgar, J. C. (2020). Maturation of Auditory Cortex Neural Activity in Children and Implications for Auditory Clinical Markers in Diagnosis. 11(November), 1–13. <https://doi.org/10.3389/fpsy.2020.584557>.

Matsuzaki J, Ku M, **Dipiero M**, et al. : Delayed Auditory Evoked Responses in Autism Spectrum Disorder across the Life Span. *Dev Neurosci* 2019;41:223-233. doi: 10.1159/000504960

Roberts, T. P.L., Bloy, L., Blaskey, L., Kuschner, E., Gaetz, L., Anwar, A., Ku, M., **Dipiero, M.**, Bennett, A., Edgar, J.C. A MEG Study of Acute Arbaclofen (STX-209) Administration. *Frontiers in Integrative Neuroscience*, Vol. 13, p. 69.

Matsuzaki J., Bloy L., Blaskey L., Miller J., Kuschner E., Ku M., **Dipiero M.**, Airey M., Edgar J. C., Embick, D., Ross J. L., Roberts T.P.L.: Abnormal Auditory Mismatch Fields in Children and Adolescents with 47,XYX Syndrome. *Dev Neurosci* 2019. doi: 10.1159/000500799.

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Edgar, JC, **Dipiero, M**, McBride, E, et al. Abnormal maturation of the resting-state peak alpha frequency in children with autism spectrum disorder. *Hum Brain Mapp.* 2019; 40: 3288– 3298. <https://doi.org/10.1002/hbm.24598>.

Port R., **Dipiero M.**, Ku M., et. Al. Children with ASD demonstrate regionally specific altered resting-state phase-amplitude coupling. *Brain Connect.* 2019 Jun;9(5):425-436. doi: 10.1089/brain.2018.0653.

PROFESSIONAL AFFILIATIONS & AWARDS

Sigma Xi, The Scientific Research Honor Society	2016-2018
Animal Behavior Society	2016-2018
2020 Gatlinburg Conference Travel Award Recipient	April 2020
The Children’s Hospital of Philadelphia Non-Traditional Personnel	2019 - Current
ISMIRM & SMRT 2021 Trainee Educational Stipend Recipient	May 2021
Morse Society Scholars Program Fellowship Recipient	September 2021

SKILLS & PROFICIENCIES

- Attended 3-day workshop for BESA Research: EEG and MEG data processing software (2018)
 - data review and preprocessing for MEG/EEG
 - preprocessing and analysis for auditory phase amplitude coupling techniques
 - ERP analyses
 - batch processing
 - computing discrete source analysis
 - MEG/EEG-MRI coregistration
 - source localization imaging
- Trained by staff psychologists in behavioral support strategies used for brain imaging infants/toddlers/school-age children with behavioral and sensory difficulties
- Proficient with JMP Pro 13 statistical software
- Proficient with SPSS statistical software
- Proficient in RStudio
- Proficient in Redcap database manager
- Proficient in Microsoft Excel and management of large datasets
- Experienced in FSLview and Freesurfer for MRI analysis
- CPR certified for infants, children, and adults
- Proficient in operation of 3 Tesla General Electric MR750 Discovery MRI scanner for data collection of study protocols from infants and children