Noelle Daigle

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Education

PhD Optical Sciences — *University of Arizona, Aug 2021 - Present*

- Biomedical Optics and Optical Measurement Laboratory, Advisor: Dr. Travis Sawyer
- GPA: 4.00/4.00

B.S. Physics
B.S. General Mathematics — *University of Nevada, Reno, Aug 2017 - May 2021*

- Physics Undergraduate Thesis: "Molecular Frame Angular Distributions for Auger Electrons in Methane," Advisor: Dr. Joshua Williams
- Minor in Astronomy, Thesis: "Observing X-ray Emission From the Quiescent Black Hole X-ray Binary V404 Cygni," Advisor: Dr. Richard Plotkin
- Minor in Spanish Language, Culture and Literature
- Honors College, Provost's Scholar

Research Experience

Biomedical Optics — *University of Arizona, Aug 2021 - Present*

- Advisor: Dr. Travis Sawyer
- Conducted multiphoton microscopy imaging on tumor samples to begin optically characterizing pancreatic neuroendocrine tumors.
- Built a polarization imaging system to measure retardance in brain tissue samples.
- Conducted fluorescence imaging for organ lineage tracing of fluorescent markers in murine models.

Atomic and Molecular Physics — *University of Nevada, Reno, Jul 2019 - May 2021*

- Advisor: Dr. Joshua Williams
- Assisted on data analysis of a COLTRIMS experiment regarding the momentum of Auger electrons by developing a method to solve a differential equation describing the velocity.
- Coded extensively in C++ and occasionally MATLAB. Worked with data in Excel.

Astrophysics — *University of Nevada, Reno, Jan 2021 - May 2021*

- Advisor: Dr. Richard Plotkin
- Conducted data analysis on Swift data taken on quiescent black hole X-ray binary V404 Cygni in the X-ray spectrum.
- Compared data with radio data to look for correlation between the two.

Teaching Experience

Learning Assistant, Department of Physics — *University of Nevada, Reno, Aug 2018 - May 2021*

- Served as Head Learning Assistant August 2020 - May 2021 and managed the Physics Help Center on campus.
- Worked in the Physics Help Center assisting students with homework and creating study materials.
- Assisted lecturers in class by guiding small group work for all general physics classes.
- Held exam reviews for all general physics classes.

Grading Assistant, Department of Mathematics — *University of Nevada, Reno, Jan 2019 - May 2021*

- Graded quizzes and homework for Partial Differential Equations (MATH 488), Introduction to Analysis I (MATH 310), Linear Algebra (MATH 330), and Calculus III (MATH 285).

Publications

N. Daigle, S. Duan, H. Song, N. Lima, R. Sontz, J. L. Merchant, T. W. Sawyer. Wide field-of-view fluorescence imaging for organ-level lineage tracing of rare intestinal stem cell populations. [Journal Article]. *Phys. Med. Biol.* [In Review]

N. Daigle, T. Knapp, S. Duan, D. W. Jones Jr., A. Azhdarinia, S. C. Ghosh, S. AghaAmiri, N. Ikoma, J. Estrella, M. Schnermann, J. L. Merchant, T. Sawyer. Combined multiphoton microscopy and somatostatin receptor type-two imaging of pancreatic neuroendocrine tumors. [Conference Proceeding]. Proc. SPIE 12371, Multimodal Biomedical Imaging XVIII, 1237109 (6 Mar. 2023).

J. Bonaventura, K. Morara, R. Carlson, C. Comrie, **N. Daigle**, E. Hutchinson, T. Sawyer. Backscattering Mueller Matrix polarimetry on whole brain specimens shows promise for minimally invasive mapping of microstructural orientation features. [Journal article]. *Frontiers in Photonics*, (2022). [In Review]

Presentations

N. Daigle, T. Knapp, S. Duan, D. W. Jones Jr., A. Azhdarinia, S. C. Ghosh, S. AghaAmiri, N. Ikoma, J. Estrella, M. Schnermann, J. L. Merchant, T. Sawyer. Combined multiphoton microscopy and somatostatin receptor type-two imaging of pancreatic neuroendocrine tumors. [Poster presentation]. Multimodal Biomedical Imaging XVIII, San Francisco, CA (Jan 29, 2023).

N. Daigle, H. Song, R. Sontz, J. Merchant, T. Sawyer. Demonstrating Whole-Organ Lineage Tracing of Fluorescent Markers in Intestinal Stem Cells Using Wide-Field Fluorescence Imaging in a Zfp148CreERT2 Mouse Model. [Poster presentation, non-presenting author]. Digestive Disease Week 2022, San Diego, CA (May 21-24, 2022).

N. Daigle, D. Fisher. University of Nevada, Reno's Learning Assistant Program: Lasting Supports for Physics Undergraduates, [Conference presentation]. 2019 Annual Meeting of the APS Far West Section, Stanford, CA (November 1-2, 2019).

Scholarships & Awards

Graduate

National Science Foundation Graduate Research Fellowship	2023
SPIE Photonics West Student Conference Support	2023
Kenneth E. and Michele L. Moore Endowed Scholarship in Optical Sciences	2022 - 2023
Geographical Management of Cancer Health Disparities Program (GMaP) Travel Funds Award	2022
DeMund Foundation Graduate Student Endowed Scholarship in Optical and Medical Sciences	2021 - 2022

Undergraduate

National Merit Scholarship	2017 - 2021
Governor Guinn Millennium Scholarship	2017 - 2021

Skills

Tissue Imaging: Experienced imaging fixed and fresh samples using polarimetry, brightfield and fluorescence microscopy, and multiphoton microscopy

Optical Design: Experienced in designing polarized light imaging systems

Programming: Experienced in Python, MATLAB, C/C++, and LaTeX

Language: Proficient in Spanish