

Sam Avery Norrell

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EDUCATION

University of Wisconsin–Madison	Madison, WI
Doctor of Philosophy in Physics	<i>Expected 2027</i>
Atomic, Molecular, and Optical Physics	
Dissertator status (ABD)	
Master of Arts in Physics	<i>May 2023</i>
Indiana University	Bloomington, IN
Bachelor of Science in Biology	<i>May 2021</i>
Concentration in Cell Biology and Molecular Genetics	
<i>Highest Distinction</i>	
Bachelor of Arts in Chemistry	<i>May 2021</i>
<i>Highest Distinction</i>	
Bachelor of Arts in Mathematics	<i>May 2021</i>
<i>Highest Distinction</i>	

RESEARCH APPOINTMENTS

Graduate Research Assistant	2021 – present
<i>University of Wisconsin–Madison Department of Physics</i>	<i>Madison, WI</i>
– Experimental Quantum Computing; Atomic Physics	
– Advisor: Mark Saffman	
Undergraduate Research Assistant	2020 – 2021
<i>Indiana University Department of Physics</i>	<i>Bloomington, IN</i>
– Experimental Quantum Computing; Quantum Simulation	
– Advisor: Philip Richerme	
Undergraduate Research Assistant	2016 – 2020
<i>Indiana University Department of Biology</i>	<i>Bloomington, IN</i>
– Molecular Genetics in <i>D. melanogaster</i>	
– Advisor: Nicholas Sokol	

TEACHING APPOINTMENTS

Assignment Grader	2022 – present
<i>University of Wisconsin–Madison Department of Physics</i>	<i>Madison, WI</i>
– 709 Intro. to Quantum Computing, Graduate (Prof. Mark Saffman)	Fall 2024
– 779 Advanced Quantum Computing, Graduate (Prof. Matthew Otten)	Spring 2024
– 709 Intro. to Quantum Computing, Graduate (Prof. Mark Saffman)	Fall 2023
– 531 Intro. to Quantum Mechanics, Graduate (Prof. Mark Saffman)	Spring 2023
– 709 Intro. to Quantum Computing, Graduate (Prof. Mark Saffman)	Fall 2022
– 325 Optics, Undergraduate (Prof. Mark Saffman)	Spring 2022

Private Tutor

Freelance

2022 – present

Madison, WI

Courses Tutored (UW-Madison):

- Chemistry 665: Biophysical Chemistry
- Mathematics 222: Calculus and Analytic Geometry 2
- Physics 103: General Physics (Mechanics), Algebra-Based
- Physics 104: General Physics (Electricity and Magnetism), Algebra-Based
- Physics 207: General Physics (Mechanics), Calculus-Based
- Physics 208: General Physics (Electricity and Magnetism), Calculus-Based

PUBLICATIONS AND PRESENTATIONS

REFERRED JOURNALS AND PREPRINTS

- 4. Interleaved dual-species arrays of single atoms using a passive optical element and one trapping laser**
C. Fang, J. Miles, J. Goldwin, M. Lichtman, M. Gillette, M. Bergdolt, S. Deshpande, S. Norrell, P. Huft, M. Kats, M. Saffman
[arXiv Preprint: 2412.20261 \[atom-phys\] \(2024\).](#)
- 3. Fast measurements and multiqubit gates in dual-species atomic arrays**
D. Petrosyan, S. Norrell, C. Poole, M. Saffman
[Phys. Rev. A **110**, 042404 \(2024\).](#)
- 2. Quantum Computation of Hydrogen Bond Dynamics and Vibrational Spectra**
P. Richerme, M.C. Revelle, C.G. Yale, D. Lobser, A.D. Burch, S.M. Clark, D. Saha, M.A. Lopez-Ruiz, A. Dwivedi, J.M. Smith, S.A. Norrell, A. Sabry, S.S. Iyengar
[J. Phys. Chem. Lett., **14**, 7256 \(2023\).](#)
- 1. Coordinated repression of pro-differentiation genes via P-bodies and transcription maintains Drosophila intestinal stem cell identity**
K. Buddika, Y. Huang, I.S. Ariyapala, A. Butrum-Griffith, S.A. Norrell, A.M. O'Connor, V.K. Patel, S.A. Rector, M. Slovan, M. Sokolowski, Y. Kato, A. Nakamura, N.S. Sokol
[Current Biology, **32**\(2\), 386 \(2022\).](#)

TALKS

- 4. A Single-Wavelength Trap Array of Neutral Rubidium and Cesium Atoms**
54th Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics
Spokane, WA
June 2023
- 3. Quantum Computing and Error Correction with Neutral Cesium and Rubidium Atoms**
Physics Department Special Research Colloquium
University of Wisconsin–Madison, Madison, WI
March 2023
- 2. Programming Trapped-Ion Quantum Computers**
Society of Physics Students, Indiana University Chapter

Indiana University, Bloomington, IN
September 2020

1. **Purification of Trailer Hitch (TRAL) Antigen for Antibody Production**
2017 Integrated Freshman Learning Experience Research Symposium
Indiana University, Bloomington, IN
July 2017

POSTERS AND CONFERENCE PROCEEDINGS

5. **Progress Towards a Single-Wavelength Dual-Species Optical Atomic Trap Array**
Sam Norrell, Preston Huft, Ravikumar Chinnarasu, Trent Graham, Kais Jooya, Sanket Deshpande, Chengyu Fang, Mikhail Kats, Mark Saffman
Chicago Quantum Summit
Chicago Quantum Exchange, Chicago, IL
November 2022
4. **Progress Towards a Single-Wavelength Dual-Species Optical Atomic Trap Array**
Sam Norrell, Preston Huft, Ravikumar Chinnarasu, Trent Graham, Kais Jooya, Sanket Deshpande, Chengyu Fang, Mikhail Kats, Mark Saffman
Midwest Cold Atom Workshop (MCAW) 2022
University of Wisconsin–Madison, Madison, WI
November 2022
3. **P-Body Alteration and Genetic Screening in Drosophila Intestinal Cells**
Sam Norrell, İlayda Altiok, Kasun Buddika, Nicholas Sokol
Fall 2019 Science, Technology and Research Scholars Research Symposium
Indiana University, Bloomington, IN
September 2019
2. **A Genome-Wide Screen for Necessary Stress Granule Protein Components in Drosophila Intestinal Cells**
Sam Norrell, Eunil Im, Mallory Sokolowski, Kasun Buddika, Nicholas Sokol
Fall 2018 Science, Technology and Research Scholars Research Symposium
Indiana University, Bloomington, IN
September 2018
1. **Regulatory RNA Pathways in Stem Cells and Differentiation**
Sam Norrell, Nicholas Sokol
2018 Summer Science Institute Poster Session
Indiana University, Bloomington, IN
June 2018

HONORS AND AWARDS

Dale & Raelyn Cole Student Leader Training Award, University of Wisconsin – Madison Hoofer Sailing Club. 2023.

Charles Elwood Mendenhall Award in Experimental Physics, University of Wisconsin – Madison Department of Physics. 2023.

Victor E. Viola, Jr. Award in Nuclear and Physical Chemistry, Indiana University Department of Chemistry. 2021.

Founders Scholar, Indiana University. 2018, 2019, 2020, 2021.

Executive Dean's List, Indiana University. Fall 2017-Spring 2021, each semester.

SCHOLARSHIPS

Doctoral Scholarship, University of Wisconsin – Madison Department of Physics. 2021-2022.

Sid Robinson Scholarship, Indiana University Department of Biology. 2019-2021.

Verne O. Kling & Dorothy M. Kling Scholarship, Indiana University College of Arts & Sciences. 2019-2020.

Hutton Honors Scholarship, Indiana University Hutton Honors College. 2017-2021.

Hoosier Scholar, Indiana University. 2017-2021.

Provost Scholarship, Indiana University. 2017-2021.