

# John Henry Lacy

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## EDUCATION

### **University of Sussex (2014 – 2019)**

*PhD in Physics.*

### **Queen Mary, University of London (2012 – 2013)**

*Postgraduate Certificate in Intellectual Property Law.*

### **University of Cambridge (2008 – 2012)**

*M.Sci Natural Sciences (Experimental & Theoretical Physics).*

*MA (Cantab) Natural Sciences (Experimental & Theoretical Physics).*

### **Negus Sixth Form College, London, SE18 1QF (2006 – 2008)**

*A Level (before introduction of A\*).*

*Chemistry, Physics, Mathematics, Biology, Further Mathematics (AS), General Studies (AS) (all grade A).*

### **Abbey Wood Secondary School, London, SE2 9AJ (2001 – 2006)**

*GCSEs (10 A\*/As).*

## EMPLOYMENT HISTORY

### **Furman University (2026 – present)**

*Assistant Professor in Physics.*

### **Williams College (2019 – 2026)**

*Postdoctoral Research Fellow and Visiting Assistant Professor.*

### **University of Sussex (2017, 2018 – 2019)**

*Research Fellow in Quantum Technology (PhD intermission).*

### **Insight Education (2013 – 2020)**

*Private tutor for Physics and Mathematics.*

### **Page White & Farrer – Patent and Trademark Law Firm, London (2012 – 2014)**

*Trainee Patent Attorney (part qualified).*

### **Cavendish Laboratory – Physics Department, University of Cambridge (2010)**

*Undergraduate Laboratory Assistant.*

## TEACHING EXPERIENCE

### **Williams College (2020 – present)**

Phys 10: “Light and Holography.” Lecturer/Course convenor (2022).

Phys 141: “Mechanics and Waves.” Lab instructor (2020, 2021).

Phys 131: “Mechanics and Waves.” Lecturer/Course convenor (2022, 2023).

Phys 301: “Quantum Mechanics.” Lab instructor (2022, 2023, 2025).

Phys 205: “Introduction to Electronics.” Lecturer/Course convenor (2025).

*Lab advisor for research assistants and seven senior thesis students (2019 – present).*

### **University of Sussex (2015 – 2016, 2019)**

ISP01/ISP02: “International Physics Summer School.” Lab course convenor (2019).

F3222: “Year 1 Physics Laboratory.” Lab instructor and trainer (2015, 2016).

### **Oxbridge Tutor for Insight Education/Insight Outreach (2013-2020)**

*Physics, Math, and Computer Science tutor for underrepresented students applying for Oxbridge.*

### **Boxing coach/instructor (2021 – present)**

## **PEER-REVIEWED PUBLICATIONS**

**J. H. Lacy**, “Oscillatory Modes of a Boxing Heavy Bag,” in preparation, intending to submit to *Am./Eur. J. Phys.* in 2026.

**J. H. Lacy**, A. C. Kinney,\* and P. K. Majumder, “High-precision measurements of electric-dipole-transition amplitudes in excited states of  $^{208}\text{Pb}$  using Faraday rotation spectroscopy,” *Phys. Rev. A*, 111, 042808 (2025).

**J. H. Lacy** and J. Verdú, “Circuit model for switchless high-temperature superconducting coated conductor flux pump using flux conservation and E-J power law,” *IEEE Transactions on Applied Superconductivity*, vol. 34, no. 3, pp. 1-5, May 2024, Art no. 5201405.

**J. H. Lacy**, G. E. Patenotte,\* A. Kinney,\* P. K. Majumder, “Broadband Faraday rotation spectroscopy with uniaxial single crystal  $\text{CeF}_3$  modulator”, *Photonics* 2024, 11(4), 304; <https://doi.org/10.3390/photonics11040304>

A. J. Uribe, A. Cridland-Mathad, **J. H. Lacy**, J. Pinder, R. Willetts, and J. Verdú, “High frequency properties of a planar ion trap fabricated on a chip,” *Rev. Sci. Instrum.* 93 083202, 2022.

**J. H. Lacy**, A. Cridland, J. Pinder, A. Uribe, R. Willetts and J. Verdú, “Flux Pumping of Multiple Double-Loop Superconducting Structures for a Planar Magnetic Field Source,” in *IEEE Transactions on Applied Superconductivity*, vol. 32, no. 7, pp. 1-11, Oct. 2022, Art no. 4901511

J. Pinder, **J. H. Lacy**, R. Willetts, A. Cridland-Mathad, A. Uribe, and J. Verdú, “Planar, Strong Magnetic Field Source for A Chip Ion Trap”, *Review of Scientific Instruments* 91, 103201 (2020); <https://doi.org/10.1063/5.0024735>

A. Cridland-Mathad, **J. H. Lacy**, J. Pinder, A. Uribe, R. Willetts, R. Alvarez, and J. Verdú, “Coherent coupling of a trapped electron to a distant superconducting microwave cavity”, *Appl. Phys. Lett.* 117, 154001 (2020), <https://doi.org/10.1063/5.0023002>

**J. H. Lacy**,† A. Cridland, J. Pinder, A. Uribe, R. Willetts and J. Verdú, “Superconducting Flux Pump for a Planar Magnetic Field Source,” in *IEEE Transactions on Applied Superconductivity*, vol. 30, no. 8, pp. 1-12, Dec. 2020, Art no. 4902412, doi: 10.1109/TASC.2020.3004768.

Cridland, A.; **Lacy, J.H.**; Pinder, J.; Verdú, J., “Single Microwave Photon Detection with a Trapped Electron”, *Photonics* 2016, 3, 59. <https://doi.org/10.3390/photonics3040059>

\*undergraduate co-authors

† papers with non-author undergraduate contributions

## **SELECTED CONFERENCES/PRESENTATIONS**

### **Gordon Research Conference (Atomic Physics) (2025)**

“High-precision spectroscopy in Pb: Isotope shift and hyperfine structure measurements.”

### **Amherst College Physics colloquium (2023)**

Invited talk: “Making use of imperfect perfect conductors.”

### **European Conference on Applied Superconductivity (EUCAS) (2023)**

“Circuit model for switchless high-temperature superconducting coated conductor flux pump using flux conservation and E-J power law.”

### **International Conference on Atomic Physics (ICAP) (2022, 2024)**

Various posters on high precision measurements in Pb.

### **Annual Meeting of APS Division of Atomic, Molecular and Optical Physics (DAMOP) (2020-2026)**

Various posters and talks on high precision measurements in Pb.

**China-Britain STEAM Education Union Innovation Programme, University of Cambridge (2018)**

*Invited lecture: "Basics of Quantum Physics."*

**From Quantum Optics to Quantum Technology – Royal Society, London (2017)**

*"Single microwave photon detector with a trapped electron as QND transducer."*

**European Conference on Trapped Ions (ECTI) (2014, 2016)**

*Various posters on electron Penning traps and superconducting magnetic field sources.*

**Cavendish Graduate Careers Day, University of Cambridge (2016, 2018)**

*Invited speaker: "Careers in Patent Law."*

**Microphoton Workshop – National Physical Laboratory, Teddington**

*"Single microwave photon detector with trapped electrons."*

**International Conference on Quantum, Atomic, Molecular, and Plasma Physics (QUAMP) (2015)**

*"Future applications of The Geonium Chip – a planar Penning trap."*

**University of Sussex Postgraduate Research Day – Competition Speaker (2015)**

*"The Geonium Chip Penning trap as a portable mass spectrometer."*

### **GRANTS AND SCIENTIFIC/PROFESSIONAL CONTRIBUTIONS**

**Hiring/search committees for PhD and postdoctoral candidates**

*Univ. Sussex and Williams College.*

**Peer reviewer**

*Journal of Superconductivity and Novel Magnetism, Journal of the Optical Society of America B, Optics Express.*

**Grant contributions**

*National Science Foundation (NSF) annual reports (supporting Prof. Tiku Majumder).*

### **SCHOLARSHIPS AND AWARDS**

**Sussex Doctoral Overseas Travel Grant**

*£1000 to present at overseas international conferences.*

**Graystone Scholarship**

*Cambridge University prize for academic performance.*

**Downing College Book Prize**

*For outstanding performance in examinations.*

**Full Cambridge Blue**

*Highest university sporting honour. Awarded for amateur boxing.*

### **SOCIETIES/CLUBS/MISCELLANEOUS**

**Cambridge University Amateur Boxing Club (CUABC)**

*University Varsity Captain (2011-2012).*

*University Sporting Honors "Blues" Committee Member.*

**Griffins Club, Downing College, Cambridge**

*Invited member for demonstrating sporting excellence and achievement.*

**Williamstown Dart League**

*Team Captain.*

**American Physical Society**

*Early Career Member.*