Bryan T. Weinstein

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Education

- **Harvard University** Cambridge, MA
  PhD in Applied Physics *Expected May 2017*
- **Harvard University** Cambridge, MA
  S.M. in Applied Physics *Expected May 2014*
- **Case Western Reserve University** Cleveland, OH
  Bachelor of Science in Engineering, Engineering Physics *May 2012*
  - GPA: 4.00/4.00 (Summa Cum Laude)
  - Engineering Concentration: Aerospace Engineering
  - Senior Project: Simulating Interactions between Confined Spins and Ferromagnetic Vortices

Fellowships

- **Department of Energy Office of Science Graduate Fellowship** Washington, D.C.
  Graduate Student *September 2012 - September 2014*
  - Wrote proposal to win competitive fellowship supporting students pursuing training in areas relevant to Department of Energy (DOE)
  - Selected out of 1,300 applicants; only 50 fellowships awarded
  - Attended yearly conferences at National Laboratories; networked with other fellows and government officials
- **Harvard University Pierce Fellow** Cambridge, MA
  Graduate Student *September 2012 - September 2014*
  - Won fellowship awarded to the highest caliber PhD students accepted into Harvard's School of Engineering and Applied Sciences (SEAS)
  - Selected out of 150 students; only 8 fellowships awarded

Research Experience

- **Rochester Institute of Technology** Rochester, NY
  Visiting Researcher, Department of Physics (George Thurston, PhD) *May 2010 - Present*
  - Studied liquid crystal mixtures in the eye related to cataracts
  - Created computer simulations and animations with Mathematica
  - Demonstrated how liquid crystal composition affects the refractive index of the eye
  - Validated simulations with experimental data
  - Prepared results for scientific publication
- **Case Western Reserve University** Cleveland, OH
  Researcher, Department of Physics (Advisor: Jesse Berezovsky, PhD) *Aug 2010 - May 2012*
  - Examined control of optically active nanocrystal quantum dots (QDs) at room temperature using microscopic ferromagnet magnetization dynamics
  - Studied novel combinations of QDs and microscopic ferromagnets using the "Object Oriented Micro-Magnetic Framework" developed by National Institute of Standards and Technology
  - Analyzed data from simulations with Matlab and other Linux-based tools
  - Created custom animations to visualize simulations
  - Uncovered ferromagnet-spin interactions relevant to room-temperature quantum computing

- **Princeton Plasma Physics Laboratory** Princeton, NJ
  Intern, Theory and Computation Department (Harry Mynick, PhD) *May 2011 - Aug 2011*
  - Participated in "Science Undergraduate Laboratory Internship" through Department of Energy
  - Designed graphical front end for previously developed Mathematica program that calculated important plasma physics quantities
  - Utilized state-of-the-art computer cluster for scientific computing
  - Distributed redesigned program to plasma physicists for broad usage
- **Case Western Reserve University** Cleveland, OH
  Researcher, Department of Physics (Corbin Covault, PhD) *Sep 2009 - May 2010*
  - Identified faulty equipment at the Pierre Auger Cosmic Ray Observatory by analyzing data collected by 1600 Cherenkov surface detectors
  - Created programs to monitor detector performance in real time
  - Demonstrated that the number of faulty detectors was proportional to observatory temperature
  - Used findings to design improved surface detectors being built at "Northern Auger Site" in Colorado
- **Case Western Reserve University** Cleveland, OH
  Researcher, SAGES Department (Mark Gridley, PhD) *Jan 2009 - Aug 2009*
  - Designed a psychology study examining cross-modal perception of music
  - Administered study to over 50 participants and analyzed results
  - Co-authored a paper that was subsequently published in a peer-reviewed journal

Publications & Presentations

Undergraduate Awards

- **Case Alumni Association Prize** Cleveland, OH
  Case Western Reserve University *5/2012*
  - Awarded to the graduating senior with the best academic record in the Case Western School of Engineering.
- **Elmer C. Stewart Memorial Award** Cleveland, OH
  Case Western Reserve University *5/2012*
  - Awarded to an outstanding senior in Physics who has demonstrated achievement in the applications of physics.
- **B.S. Chandrasekhar Prize** Cleveland, OH
  Case Western Reserve University *5/2011*
  - Received for demonstrating superior performance in physics.
- **Rochester Engineering Society Scholarship** Rochester, NY
  Rochester Engineering Society *5/2011*
  - Merit-based award recognizing outstanding engineering, engineering technology, science, or technology students from the Rochester area.
- **Outstanding Junior Award** Cleveland, OH
  Case Western Reserve University *5/2011*
  - Awarded to juniors with the best academic record at the end of five semesters in the Case School of Engineering.
- **National Edward O'Connor Scholarship** Cleveland, OH
  Aerospace States Association *8/2010*
  - Awarded to enterprising and innovative students planning to pursue career in Aerospace Engineering; only two scholarships given in the nation.

- **Case Alumni Scholarship** Cleveland, OH
  Case Western Reserve University *5/2010*
  - Competitive award given to undergraduates pursuing degree related to applied science.
- **Outstanding Sophomore Award** Cleveland, OH
  Case Western Reserve University *5/2010*
  - Awarded to sophomores with the best academic record at the end of three semesters in the Case School of Engineering.
- **Provost's Scholarship** Cleveland, OH
  Case Western Reserve University *8/2008*
  - Received when entering Case Western Reserve University based on high-school accomplishments, such as being the valedictorian of high-school class of 598 students.

Specialized Skills

- **Computer**
  - *Operating Systems*: Linux/Unix, Windows, Macintosh
  - *Selected Languages & Programs*: Mathematica, Matlab, C++, CUDA, Fortran, Java, Python, Bash, LaTeX, OOMMF, Origin, Igor, Windows Powershell, HTML, CSS
  - *Hardware*: Build customized computers for scientific applications
  - *Miscellaneous*: Significant experience optimizing programs to run on multiple processors, graphics processing units, and supercomputers
- **Laboratory**
  - Signal analysis instrumentation
  - Spectroscopy, multi-channel analyzers, photomultiplier tubes
  - Ultra-high vacuum surface science
  - Ultrasonic methods to determine material properties
  - Thermionic emission in vacuums
  - Experimental methods to analyze chaotic systems
- **Analytical**
  - Expert at solving partial differential equations
  - Expertise utilizing Mathematica to solve complex physical problems

Certifications

- **Engineer in Training (EIT)** Ohio
  Active *September 2012*
  - Successfully passed Fundamentals of Engineering Exam

Professional Organizations

- Tau Beta Pi Engineering Honor Society

References

- **Dr. George Thurston** Professor of Physics
  Rochester Institute of Technology Department of Physics
  - *Relationship*: Current Research Advisor
  - *Web Page*: `http://www.rit.edu/cos/george-thurston`

- *Email*: georgemthurston@gmail.com
- *Phone*: (585) 475-4549

- **Dr. Jesse Berezovsky** Assistant Professor of Physics
  Case Western Reserve University Department of Physics
  - *Relationship*: Previous Research Advisor
  - *Web Page*: `http://www.phys.cwru.edu/faculty/index.php?berezovsky`
  - *Email*: jab298@case.edu
  - *Phone*: (216) 368-4034

- **Dr. Walter Lambrecht** Professor of Physics
  Case Western Reserve University Department of Physics
  - *Relationship*: Undergraduate Academic Advisor
  - *Web Page*: `http://www.phys.cwru.edu/faculty/index.php?lambrecht`
  - *Email*: walter.lambrecht@case.edu
  - *Phone*: (216) 368-6120

- **Dr. Harry Mynick** Principal Research Physicist
  Princeton Plasma Physics Laboratory
  - *Relationship*: Previous Research Advisor
  - *Web Page*: `http://w3.pppl.gov/theory/mynick.html`
  - *Email*: hmynick@pppl.gov
  - *Phone*: (609) 243-2769