




# Amanda J White

 [www.AmandaWhite.science](http://www.AmandaWhite.science) •  LinkedIn  
 [orcid.org/0000-0001-8929-6896](https://orcid.org/0000-0001-8929-6896)

## Education

---

### University of Colorado, Boulder

Department of Astrophysical & Planetary Sciences

Boulder, CO

Fall 2016 – Present

**PhD** in Astrophysics and Planetary Sciences, *expected August 2023*

**Master of Science** in Astrophysics and Planetary Sciences, *December 2018*

### Drexel University

College of Arts and Sciences, Department of Physics

Philadelphia, PA

Fall 2007 – Spring 2011

**Bachelor of Science** in Physics, *Cum Laude, June 2011*

Concentration: Astrophysics

*Pennoni Honors College, Graduation with Distinction*

## Research Experience

---

### Graduate Research Assistant

National Solar Observatory

Boulder, CO

May 2017 – Present

**Dissertation:** “Effects of Dielectric Mirror Coatings on Polarization Behavior at a System Level”

**Advisor:** David M. Harrington, Ph.D.

- Quantified the effects of depolarization from mirrors on the Daniel K. Inouye Solar Telescope
- Safely handled, measured, and transported delicate, one-of-a-kind optics
- Collected lab polarimeter data in MATLAB to verify various optical coatings on mirrors, dichroics, crystal retarders and other optics in transmission and reflection
- Reduced and analyzed lab data with custom Python and Mathematica code bases

### Confocal Microscopy Specialist; Research Asst. to Curator of Meteorites

American Museum of Natural History (AMNH)

New York, NY

July 2011 – July 2016

**Project:** “Three-Dimensional Analysis of NASA Stardust Tracks”

**Supervisor:** Denton S. Ebel, Ph.D.

- Authored NASA LARS grant as Scientific Lead to obtain Raman spectrometer at AMNH
- Developed method to collect reflectance spectroscopy on a confocal microscope integrated with a Raman spectrometer
- Imaged aerogel keystones containing particle tracks returned by the NASA Stardust Mission in three-dimensions with a laser scanning confocal microscope
- Mapped keystones with Synchrotron X-Ray Fluorescence for compositional studies to complement imaging
- Characterized Stardust particle tracks based on track size for impact modeling studies

- Created first experimentally obtained point spread function (PSF) in aerogel for laser scanning confocal microscope to be used in image deconvolution

### **Planetary Science Summer School in Space Mission Design**

*NASA Jet Propulsion Laboratory*

*June – August 2021*

- Participated in the design of a mock New Frontiers class mission to Venus
- Produced mission's science traceability matrix (STM) for final proposal and review board
- Shadowed JPL Team-X Propulsion Chair through concurrent engineering design review

### **Undergraduate Research Assistant**

*Department of Physics, Drexel University*

**Philadelphia, PA**

*June 2008 – June 2011*

**Projects:** "UV Star Formation Rate of Void Dwarf Galaxies" & "Properties of Interacting Void Galaxies"

**Advisor:** Michael S. Vogeley, Ph.D.

### **University of Hawai'i, Institute for Astronomy REU Student**

*Institute for Astronomy Maui, University of Hawai'i*

**Pukalani, HI**

*June – August 2010*

**Project:** "The Search for Scattering Polarization of H<sub>2</sub> in the Second Solar Spectrum"

**Advisor:** Jeffrey R. Kuhn, Ph.D.

- Operated the SOLAR-C telescope on Haleakalā, Maui, HI
- Modified spectropolarimeter to take polarization measurements of solar disk at  $2\mu m$

### **SUNY Stony Brook REU Student**

*Department of Physics and Astronomy, SUNY Stony Brook*

**Stony Brook, NY**

*June – August 2009*

**Project:** "The Mid-IR Spectrum of a Young, Cool, Brown Dwarf"

**Advisor:** Stanimir Metchev, Ph.D.

## **Grants**

---

- **Scientific Lead and Co-Investigator**, NASA Laboratory Analysis of Returned Samples, equipment grant, "Support for a Raman Spectrometer for Laser Scanning Confocal Microscopy of Stardust Samples" – FY14; **\$116k**
- **Co-Investigator**, NASA Laboratory Analysis of Returned Samples, "Non-destructive Analysis of Comet Grains and Tracks: Minerals and Original Grain Properties" – FY16–FY18 (3 yr.); **\$390k**

## **Publications**

---

- **White, A.J.** & Harrington, D.M., (2023) "Effect of mirror coating non-uniformity on depolarization." *In Prep.*
- **White, A.J.** & Harrington, D.M., (2023) "Modeling the polarization behavior of multi-layered mirror coatings for system-level polarization modeling of DKIST." *In Prep.*
- Harrington, D.M., Sueoka, S.R., Schad, T.A., Beck, C., Eigenbrot, A.D., de Wijn, A.G., Casini, R., **White, A.J.**, Jaeggli, S.A., (2023) "Systems Approach to Polarization Calibration for the *Daniel K. Inouye Solar Telescope*," *Solar Phys.* 298, 10.

- Harrington, D.M., Wöger, F., **White, A.J.**, Sueoka, S.R., (2021) "Polarization modeling and predictions for Daniel K. Inouye Solar Telescope, part 9: Flux Distribution with FIDO," *J. Astron. Telesc. Instrum. Syst.* 7(4) 048005.
- Harrington, D.M., Schad, T.A., Sueoka, S.R., **White, A.J.**, (2021) "Polarization modeling and predictions for DKIST, part 8: calibration polarizer spatial variation impacts," *J. Astron. Telesc. Instrum. Syst.* 7(3) 038002.
- Harrington, D.M., Sueoka, S.R., & **White, A.J.**, Eigenbrot, A., Schad, T.A., (2021) "Polarization modeling and predictions for Daniel K. Inouye Solar Telescope, part 7: preliminary NCSP system calibration and model fitting," *J. Astron. Telesc. Instrum. Syst.* 7(1) 018004.
- Harrington, D.M., Jaeggli, S.A., Schad, T.A., **White, A.J.**, Sueoka, S.R., (2020) "Polarization modeling and predictions for Daniel K. Inouye Solar Telescope, part 6: fringe mitigation with polycarbonate modulators and optical contact calibration retarders," *J. Astron. Telesc. Instrum. Syst.* 6(3) 038001.
- Harrington, D.M., Sueoka, S.R., & **White, A.J.**, (2019) "Polarization modeling and predictions for Daniel K. Inouye Solar Telescope part 5: impacts of enhanced mirror and dichroic coatings on system polarization calibration." *J. Astron. Telesc. Instrum. Syst.* 5(3) 038001.
- Gainsforth, Z., Westphal, A.J., Butterworth, A.L., Jilly-Rehak, C.E., Brownlee, D.E., Joswiak, D.J., Ogliore, R.C., Zolensky, M.E., Bechtel, H.A., Ebel, D.S., Huss, G.R., Sandford, S.A. and **White, A.J.** (2019), "Fine-grained material associated with a large sulfide returned from Comet 81P/Wild 2". *Meteorit Planet Sci*, 54: 1069-1091.
- Moorman, C.M., Moreno, J., **White, A.J.**, Vogeley, M.S., Hoyle, F., Giovanelli, R., Haynes, M.P., (2016) "On the Star Formation Properties of Void Galaxies." *ApJ* **831**, pp 118-131.
- **White, A.J.** and Ebel, D. S.,(2015) "Imaging Samples in Silica Aerogel Using and Experimental Point Spread Function." *Microscopy and Microanalysis* **21**, pp 172-178.

## Extended Abstracts

---

- Alpert, H., Ahrens, C., Bell, T., Bierson, C., Bonnet, K., Dhingra, R., Dinsmore, R., Dzurilla, K., Garland, J., Gustafson, E.L., Knicely, J., Kremer, C., Lowry, V., Naz, N., Niemoeller, S., O'Brien, P., **White, A.J.**, Zucherman, A., Lowes, L., Hudson, T., Mitchell, K., (2022) "Verne: Revealing the mysteries and histories of Venus" *Lunar Planet Sci* **LIII**.
- Gainsforth, Z., Butterworth, A. L., Jilly-Rehak, C. E., Westphal, A. J., Brownlee, D. E., Joswaik, D., Ogliore, R. C., Zolensky, M. E., Bechtel, H. A., Ebel, D. S., Huss, G. R., Sandford, S. A., **White, A.J.**, (2016) "Possible Gems and Ultra-Fine Grained Polyphase Units in Comet Wild 2" *Lunar Planet Sci* **XLVII**, 2366.
- **White, A.J.**, Ebel, D. S., Greenberg, M., (2014) "Nondestructive Three-Dimensional Confocal Imaging and SXRF of Whole Stardust Tracks in Aerogel" *Lunar Planet Sci* **XLV**, 2292.
- **White, A.J.**, Ebel, D. S., Greenberg, M., (2013) "An Improved Experimental Deconvolution Technique for 3-Dimensional Laser Confocal Microscopy of Particles in Aerogel" *Lunar Planet Sci* **XLIV**, 1630.
- **White, A.J.**, Ebel, D. S., Greenberg, M., (2012) "Comparison of Deconvolution Techniques in 3-Dimensions of Stardust Tracks in Aerogel" *Lunar Planet Sci* **XLIII**, 1542.

## Teaching Experience

---

### Teaching Assistant

*Department of Astrophysical & Planetary Sciences, CU Boulder*

**Boulder, CO**

*F16, S17, S18*

- **Lab TA for ASTR 1030** - *Accelerated Introductory Astronomy I*  
an introductory course tailored towards ASTR majors – Spring 2018
- **TA for ASTR 1000** - *The Solar System*  
an introductory course tailored towards non-science majors – Spring 2017
- **Lab TA for ASTR 1010** - *Introductory Astronomy I*  
an introductory course tailored towards non-science majors – Fall 2016

### Science Research Mentoring Program (SRMP) Mentor

*Department of Education, AMNH*

**New York, NY**

*October 2015 – June 2016*

- Research mentor for 4 NYC high school students for the 2015-2016 academic year
- Advised students on a project to characterize NASA Stardust cometary tracks  
Student work related directly to what the AMNH team was researching
- Met with students 4hrs/week to discuss planetary science and goals of the project
- One student presented her work at the 2017 New York City Science & Engineering Festival (NYCSEF), a regional qualifier for the 2017 Intel International Science and Engineering Fair

### AMNH After School Program Lecturer

*Department of Education, AMNH*

**New York, NY**

*November 2012 – May 2016*

- Taught *Cosmology* to high school students (November-December 2012) and revamped curriculum
- Taught *Secrets of the Solar System*, a planetary science class for high school students (January-February 2014, October-December 2014, February-April 2015, March-April 2016)

### Adjunct Lecturer

*Department of Physics and Astronomy, Hunter College*

**New York, NY**

*January – May 2012*

- Assistant Lecturer for Astronomy 101 evening classes

### SPS After School Physics Program

*Society of Physics Students, Drexel University*

**Philadelphia, PA**

*September 2008 – May 2010*

- Initiated an after school mentorship program for 7th and 8th graders through the Drexel Society of Physics Students
- Program ran biweekly at Independence Charter School in Philadelphia for three years
- Developed lessons on advanced physics topics utilizing hands on demonstrations

## Service & Leadership Activities

---

### **Graduate Concerns and Curriculum Committee**

*University of Colorado Boulder, Dept. of Astrophysical & Planetary Sciences*

*August 2019 – Present*

- Represented graduate student body when presenting concerns and needs to APS faculty
- Lobbied for and co-authored a department grievance policy
- Influenced a grievance policy change at the Graduate School level
- Influenced redesign of department comprehensive exam and core curriculum to be robust and equitable for all students
- Organized and ran monthly Graduate Student meetings

### **Women and Gender Minorities Mentoring Circle**

*University of Colorado Boulder, Dept. of Astrophysical & Planetary Sciences*

*Spring 2017 - Present*

- Created a space for women and gender minorities associated with the APS department to meet and support each other.
- Facilitate events and social gatherings to encourage community and peer support structures

### **Faculty Search, Graduate Student Representative**

*University of Colorado Boulder, Dept. of Astrophysical & Planetary Sciences*

*Spring 2019, Spring 2017*

- Represented graduate student body during interviews of faculty candidates.
- Authored interview questions on teaching philosophy.

### **Graduate Teacher Program Lead for APS**

*University of Colorado Boulder, Graduate School*

*June 2017 – June 2018*

- Facilitated communication between the Graduate School and home department
- Mentored department TAs in order to improve teaching ability and self confidence in graduate students

### **Drexel University Chapter of the Society of Physics Students**

*Drexel University, Department of Physics*

*2007 - 2011*

**President** - March 2008 - June 2010

**Treasurer** - June 2010 - June 2011 & September 2007 - March 2008

- Obtained University recognition and funding as a student organization
- Doubled chapter size through recruitment
- Started award-winning outreach mentorship program at Independence Charter School
- Drexel SPS chapter recieved 10 national awards while President
  - Outstanding Chapter Award, Zone 3, 2009, 2010
  - Marsh White Outreach Award, 2008, 2009, 2010
  - $\Sigma\Pi\Sigma$  Undergraduate Research Award, 2008, 2010
  - $\Sigma\Pi\Sigma$  Project Award, 2009, 2010
  - SPS Reporter Award, 2008

## Mentoring

---

### **APS Binary Stars**

*Dept. of Astrophysical and Planetary Sciences, CU Boulder*

*2020-Present*

- Graduate Student peer mentor

### **Peer Mentoring Program**

*Graduate School, CU Boulder*

*2017-2020*

- Graduate Student peer mentor

### **CU Prime**

*Dept. of Physics, CU Boulder*

*2018-2019*

- Mentor for 3 undergraduates in Physics and Astrophysics

### **Science Research Mentoring Program**

*Dept. of Education, AMNH*

*2015-2016*

- Research mentor for 4 high school students

### **Pennoni Honors College Student Mentor**

*Pennoni Honors College, Drexel University*

*September 2008 - June 2011*

- Peer mentor for six freshmen students in physics and math

## Public Talks

---

- *Stardust under a microscope*, Astronomy on Tap CO, January 2017.
- *Imaging Space Rocks*, AMNH SciCafe ([bit.ly/SpaceRockSciCafe](http://bit.ly/SpaceRockSciCafe)), Dec 2014
- *Stardust under a microscope*, Astronomy on Tap NYC, June 2014.
- *Interacting Void Galaxies in the Sloan Digital Sky Survey*, College of Arts and Sciences 20th Anniversary Celebration, Drexel 2010, Invited Speaker

## Honors & Awards

---

- Chance Irick Cooke Endowed Fellowship, 2023
  - *CU Boulder, Dept of Astrophysical and Planetary Sciences*
- George Ellery Hale Graduate Fellow, CU Boulder, 2017 - 2020
  - *Full tuition and stipend*
- Barry M. Goldwater Scholar, 2010
- Drexel College of Arts and Sciences Research Day 2011
  - Undergraduate Natural Sciences, 1st Place
- Inducted to  $\Sigma\Pi\Sigma$  Physics Honor Society, April 2010
- A.J. Drexel Scholarship, Drexel University, 2007 - 2011
- Students Tackling Advanced Research (STAR) Scholar, Drexel University, 2008
  - Stipend for research project on interacting void galaxies

## References

---

*Available upon request*