Amanda J White

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Education

University of Colorado, Boulder — **Boulder, CO**
Department of Astrophysical & Planetary Sciences — *Fall 2016 – Present*

PhD in Astrophysics and Planetary Sciences, *expected August 2022*
Master of Science in Astrophysics and Planetary Sciences, *December 2018*

Drexel University — **Philadelphia, PA**
College of Arts and Sciences, Department of Physics — *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 — **Boulder, CO**
National Solar Observatory — *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 — **New York, NY**
American Museum of Natural History (AMNH) — *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 Florescence for compositional studies to compliment 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 **Philadelphia, PA**
Department of Physics, Drexel University *June 2008 – June 2011*

Projects: "UV Star Formation Rate of Void Dwarf Galaxies" & "Properties of Interacting Void Galaxies"
Advisor: Michael S. Vogeley, Ph.D.

- Calculated UV star formation rates (SFR) of dwarf galaxies in voids to study galaxy evolution
- Compared UV SFR with ALFALFA HI masses to calculate star formation "efficiency"
- Created a catalog of potentially interacting pairs located in voids
- Measured star formation rates from Hα equivalent widths for galaxy pairs
- Operated the 2.1m telescope at KPNO during observing run
- Reduced and analyzed spectra obtained at KPNO with IRAF

University of Hawai'i, Institute for Astronomy REU Student **Pukalani, HI**
Institute for Astronomy Maui, University of Hawai'i *June – August 2010*

Project: "The Search for Scattering Polarization of H_2 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 **Stony Brook, NY**
Department of Physics and Astronomy, SUNY Stony Brook *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., (2022) "Effect of mirror coating non-uniformity on depolarization."*In Prep.*
- 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 **Boulder, CO**
Department of Astrophysical & Planetary Sciences, CU Boulder *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 **New York, NY**
Department of Education, AMNH *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 **New York, NY**
Department of Education, AMNH *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 **New York, NY**
Department of Physics and Astronomy, Hunter College *January – May 2012*

- Assistant Lecturer for Astronomy 101 evening classes

SPS After School Physics Program **Philadelphia, PA**
Society of Physics Students, Drexel University *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), 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

– 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