

Douglas W. White
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Teaching Experience:

- 2017-present Assistant Professor of Physics at USC Aiken
- Introductory calculus-based physics courses and labs
 - Introductory algebra-based physics labs and physical science labs
 - Introduction to Chemistry (CHEM 101) labs
- 2013-2017 Adjunct/Visiting Professor of Physics at Jacksonville State University
- Introductory algebra-based physics labs and courses
 - Introduction to Quantum Mechanics (PHS 491)
 - Classical Mechanics (PHS 303)
 - Introductory Astronomy
 - Astronomy Viewing events (e.g., Mercury transit 2016)
 - Jacksonville River Monitors (water quality testing)
- 2011-2012 Mentoring undergraduate and graduate research participants at NASA Ames Research Center, Yuri's Day (educational outreach day for school children) volunteer at NASA-ARC
- 2002-2010 Graduate Assistant/Instructor at UAB
- Introductory astronomy labs
 - Introductory physics labs, recitation sections
 - Lab coordinator for astronomy, training graduate student instructors
- 2009 Hosted 100 Hours of Astronomy in support of the 2009 International Year of Astronomy on the nights of April 2-5 at UAB
- 2000-2002 Teaching Assistant at NGCSU
- Introductory physics labs
 - Introductory astronomy labs, Telescope operator at NGAO

Research Experience:

- 2017-present Assistant Professor of Physics, USC Aiken
Laboratory analogs of thermally-processed interstellar and planetary ices
- 2011-2013 Postdoctoral Fellow, NASA Ames Research Center
- Laboratory analogs of thermally and UV-processed N₂-rich ices relevant to observations from the surface of Pluto in support of the New Horizons mission
Dr. Scott Sandford, Dr. Dale Cruikshank, Dr. Rachel Mastrapa, Supervisors
 - Laboratory studies of NH₃- and CO₂-containing planetary and interstellar ice analogs,
Dr. Scott Sandford, Dr. Rachel Mastrapa, Supervisors
- 2005-2010 Graduate Assistant
Laboratory Studies of CO₂ Interstellar Ice Analogs Subject to Thermal Processing, UAB Astrophysics Laboratory
Dr. Perry Gerakines, Advisor
- 2003-2005 Graduate Assistant
High pressure studies of polymers, UAB Materials Physics
Energy-dispersive x-ray diffraction analysis of materials at NSLS in Brookhaven National Laboratory
Dr. Yogesh K. Vohra, Advisor
- 2002-2003 Graduate Assistant
Homoepitaxial single crystal diamond growth for use in designer diamond anvils for high-pressure experiments, UAB Materials Physics
Dr. Yogesh K. Vohra, Advisor
- 2001-2002 Studies of radioactive elements and neutron activation, North Georgia College & State University (NGCSU) undergraduate nuclear physics laboratory
Dr. Richard Prior and Dr. Mark Spraker, NGCSU
- 2000-2002 Student Assistant, North Georgia Astronomical Observatory (NGAO)
Planet transit observation (HD209458), Color-Magnitude diagrams of star clusters (NGC2362)
Dr. Joseph Jones, NGCSU
- 6/2001-8/2001 REU participant in chemical vapor deposition (CVD) of large, single crystal homoepitaxial diamonds
Dr. Yogesh K. Vohra, Dr. Chih-Shuie Yan, UAB, Mentors

Education:

<u>2010</u>	PhD in Physics from UAB, Birmingham, AL Dr. Perry Gerakines, advisor
<u>2007</u>	M.S. in Physics from UAB, Birmingham, AL Dr. Perry Gerakines, advisor
<u>2002</u>	B.S. in Physics from NGCSU, Dahlonga, GA Dr. Mark Spraker, undergraduate advisor

Special Skills:

Operation of a 16" Cassegrain telescope with a CCD camera for undergraduate research and astronomy labs. Use of a multi-channel analyzer with a NaI detector for analyzing radioactive decay of daughter elements of Uranium and irradiation experiments with ^{239}Pu . Laboratory experience with 1.2 kW and 6 kW Microwave Plasma Chemical Vapor Deposition (MPCVD) systems for single-crystal diamond growth. Use of Raman Spectroscopy and x-ray diffraction in analysis of high-pressure materials and thin films. Operation of an x-ray analysis station at Brookhaven National Laboratory. Use of vacuum systems and operation of a closed-cycle He cryostat and FTIR spectrometer to analyze laboratory ice analogs. Operation of a quadrupole mass spectrometer in temperature programmed desorption of interstellar ices in the laboratory with a high-vacuum system, as well as some experience with LabView. Laboratory astrophysics, astrochemistry, and planetary science. Use of Origin, IGOR, SciDAVis, and Excel software for graphical analysis as well as MS Word and LaTeX for documentation.

Awards/Honors:

Outstanding Graduate Student (2010)
Dean's Research Award (2010)
Alabama Space Grant Consortium fellow (2008-2010)
Graduate Student Association Senator (Fall 2007-Spring 2009)
Outstanding Undergraduate in Physics (2002) from NGCSU
Sigma Pi Sigma (2001)

Professional Memberships:

Astrochemistry Division, American Chemical Society (2020-present)
American Chemical Society (2020-present)
Laboratory Astrophysics Division, 2012-2017
Division of Planetary Science (DPS), 2011-2013
American Astronomical Society (AAS), 2006-2017
American Physical Society (APS), 2003-2006
Society of Physics Students (SPS), 1997-2002

Publications:

White, D. W. "Building an astrophysics/astrochemistry laboratory from scratch." Submitted 2020, *The Physics Teacher*, under review.

Materese, C. K., Cruikshank, D. P., Sandford, S. A., Imanaka, H., Nuevo, M., White, D. W. "Ice Chemistry on Outer Solar System Bodies: Carboxylic acids, Nitriles, and Urea Detected in Refractory Residues Produced from the UV-photolysis of N₂:CH₄:CO Containing Ices." 2014, *ApJ*, 788, 111

White, D. W., Mastrapa, R. M. E., and Sandford, S. A. "Laboratory Spectra of CO₂ Vibrational Modes in Planetary Ice Analogs." 2012, *Icarus*, 221, 1032

Cook, A. M., Whittet, D. C. B., Shenoy, S. S., Gerakines, P. A., White, D. W., and Chiar, J. E. "The Thermal Evolution of Ices in the Environments of Newly Formed Stars: The CO₂ Diagnostic." 2011, *ApJ*, 730, 124

White, D. W., Gerakines, P. A., Cook, A. M., and Whittet, D. C. B. "Laboratory Spectra of the CO₂ Bending-Mode Feature in Interstellar Ice Analogs Subject to Thermal Processing." 2009, *ApJS*, 180, 182

White, D. W., Yan, Chih-Shuie, and Vohra, Y. K. "Effect of nitrogen in the growth of a single crystal diamond by chemical vapor deposition." NCUR 2002 Proceedings.

Presentations:

White, D. W., Laboratory Studies of Thermally Processed Ice Mixtures Relevant to Outer-Planetary Surfaces. SERMACS, Savannah, GA. Oct. 22, 2019.

Materese, C. K., Cruikshank, D. P., Sandford, S. A., and White, D. W. Radiation Chemistry on Pluto: A Laboratory Approach. New Horizons Conference, Laurel, MD. July 22-26, 2013.

White, D. W., Mastrapa, R. M. E., Gerakines, P. A., and Sandford, S. A. *Laboratory spectral studies of NH₃ ice mixtures relevant to astrophysical environments*. Poster presented at the 220th AAS Meeting in Anchorage, AK. June 10-14, 2012.

White, D. W., Mastrapa, R. M. E., and Sandford, S. A. *Laboratory studies of solid CO₂ in planetary and interstellar ices*. Poster presented at the 219th AAS Meeting in Austin, TX. January 8-12, 2012.

White, D. W., Mastrapa, R. M. E., and Sandford, S. A. *Laboratory studies of solid CO₂ in planetary ice analogs*. Poster presented at the joint EPSC-DPS meeting in Nantes, France. October 2-7, 2011.

Mastrapa, R. M. E., Cook, J. C., Berry, M. T., White, D. W., Sandford, S. A. *Laboratory spectra of ice mixtures relevant to New Horizons observations of Pluto and TNOs*. Poster presented at the New Horizons Workshop, Flagstaff, AZ. August 30-31, 2011.

White, D. W., and Gerakines, P. A. *Laboratory Studies of CO₂ Ices Subject to Thermal Processing*. Poster presented at AAS Meeting in Long Beach, CA. January 4-8, 2009.

White, D. W., Gerakines, P. A., Cook, A. M., and Whittet, D. C. B. *Laboratory Studies of Solid CO₂ Ices in Support of Spitzer Space Telescope Observations*. Poster presented at 211th AAS Meeting in Austin, TX. January 6-11, 2008.

White, D. W., and Gerakines, P. A. *Laboratory Studies of Solid CO₂ Ices in Support of Spitzer Space Telescope Observations*. Poster presented at joint AAS/AAPT Meeting in Seattle, WA. January 4-10, 2007.

White, D. W., Vohra, Y. K., and Weir, S. T. *Electrical and optical properties of amber polyurethane at high pressures using a designer diamond anvil cell*. Poster presented at 1st annual Stockpile Stewardship Academic Alliances (SSAA) Symposium in Albuquerque, NM. March 29-31, 2004.

White, D. W., Yan, Chih-Shuie, and Vohra, Y. K. "Effect of nitrogen in the growth of a single crystal diamond by chemical vapor deposition." National Conference on Undergraduate Research (NCUR) in Whitewater, WI. April 25-27, 2002.

Personal Interests:

Bluegrass music (banjo, guitar), Budo Taijutsu, traveling, running, hiking, cooking