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Education

January 2008 — Doctor of Philosophy
Rice University, Houston, Texas
Fields of Study: Atomic, Molecular, and Optical Physics, Surface Physics
Dissertation Title: *Angular Dependence of Xenon Rydberg Atom Ionization at Conducting and Semiconducting Surfaces*

May 2005 — Master of Science
Rice University, Houston, Texas
Fields of Study: Atomic, Molecular, and Optical Physics, Surface Physics
Thesis Title: *Ionization of Xenon(nf) Rydberg Atoms at a Conducting Surface*

May 2001 — Bachelor of Science
Angelo State University, San Angelo, Texas
Major Field of Study: Applied Physics
Minor Field of Study: Mathematics
Honors: Sigma Pi Sigma

Teaching Experience

2010 – Present — Assistant Professor of Physics, Angelo State University, San Angelo, Texas

Course Record:

- Introduction to Mathematical Physics (PHYS 3301): Specific mathematical topics as applied to standard problems in physics
- Statics (PHYS 2302): Engineering statics/systems in static equilibrium
- College Physics II Laboratory (PHYS 1422): Laboratory component for PHYS 1422
- College Physics (PHYS 1421): Algebra/trigonometry based Newtonian mechanics and thermodynamics
- Fundamentals of Astronomy (PHYS 1301): Astronomy of stars, galaxies, and cosmology
- Stellar Astronomy Laboratory (PHYS 1101): Laboratory component for PHYS 1301
- Introductory Physical Science Laboratory I & II (PS 1101/1102): Laboratory component for PS 1301; Laboratory component for PS 1302
- Physical Science Concepts I & II (PS 3311/3312): Physical systems and sub-systems, interactions, variables, motion, energy, light and optics; Physical systems and sub-systems, interactions, variables, electricity, magnetism, heat, astronomy, and Earth science

Curriculum Development Record:

- Physical Science Concepts I & II (PS 3311/3312): Modified to include best practices of laboratory science documentation principles and current state standards for educators.

2007 – 2010 — Associate Professor of Physics, Odessa College, Odessa, Texas

Course Record:

- College Physics I & II (PHYS 1401/1402): Algebra/trigonometry based Newtonian mechanics, thermodynamics, electricity, magnetism, light and optics
- Engineering Physics I, II, & III (PHYS 2425, 2426, 2427): Calculus based Newtonian mechanics, thermodynamics, electricity, magnetism, light and optics, relativity, atomic physics, nuclear physics, quantum mechanics

Introductory Astronomy I & II (PHYS 1403/1404): Astronomy of stars, galaxies, cosmology, planetary formation, solar system astronomy

Curriculum Development:

Engineering Mechanics I & II: Calculus based engineering statics and dynamics

Introductory Physical Science I & II: Overview of physics, chemistry, astronomy, geology, and meteorology

Summer Bridge Program: Activity based enrichment to pre-calculus mathematics for students entering pre-engineering under the CCRAA grant; use of MATLab and PASCO equipment for various engineering projects

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Work History

2010 – Present	Assistant Professor of Physics Angelo State University Physics Department, San Angelo, Texas
2007 – 2010	Associate Professor of Physics Odessa College Department of Physics, Odessa, Texas
2001 – 2007	Graduate Research Assistant Rice University Department of Physics and Astronomy, Houston, Texas
1999 – 2001	Grading Assistant/Volunteer Laboratory Assistant Angelo State University Physics Department, San Angelo, Texas

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Grant Activities

2010 – 2011

Angelo State University Faculty Research Enhancement Grant Program

Optical Characterization and GIS Mapping of Light Pollution in West Texas

Overview: The goal of this project is to create a GIS map of background light data in Tom Green county and select locations in west Texas using all-sky cameras. Spectroscopic data on the background light in and around San Angelo, Texas will be made using the 16-inch remote telescope and self guiding spectrograph.

Contributions: Author, PI

Status: In progress.

2008 – 2010

U.S. Department of Education, College Cost Reduction and Access Act (CCRAA)
(CFDA Number 84.031)

Pathway for Hispanic Engineers in West Texas

Overview: The goal of this grant project is to increase the number of Hispanic and low-income students completing two-year Associate Degrees in engineering and transferring to regional four-year institutes, specifically Texas Tech University, to complete Bachelor of Science degrees in related engineering fields.

Contributions: Co-Author; Redesign of physics laboratory (physical space and curriculum); Design and development of engineering laboratory space; Curriculum development for engineering statics and dynamics courses (THECB approved instructor); Design and coordination of Summer Bridge Program activities; Oversight and documentation of ~ $500k of equipment and supply purchases; Documentation of student participation and program activities.

Status: The grant was awarded in October 2008 and reached its primary conclusion in October 2010. Design and development of laboratory space for physics and engineering was completed in May 2010. Laboratory curriculum modifications for use of new equipment were completed in May 2010. Engineering course curriculum was completed in April 2010.

Student Activities

2010

Joint Physics Fall 2010 TSAPS/AAPT/Z13SPS Meeting: Accompanied 17 students and Dr. Toni Sauncy to San Antonio, Texas for student participation and presentations.

Physical Geology Field Trip, Big Bend National Park: Accompanied 21 students with Dr. Joe Satterfield and Dr. James Ward to Big Bend NP for a student field trip. I conducted 2 lectures focusing on physical geology enrichment through night-time lunar observations using an 8” SCT and discussions on planetary formation science.

2009 – 2010

NASA Community College Aerospace Scholars: A semester commitment of web-based activities and preparation for students, culminating with a two-day experience at NASA Johnson Space Center featuring a hands-on project involving engineering career

possibilities. Students participate in team projects directed by NASA engineers, attend engineer, scientist, and astronaut briefings, tour facilities, and compete for the highest marks of success on their project designs. I served as point of contact for Midland/Odessa region and traveled with students to NASA JSC in April 2009 and 2010.
Summer Bridge Program: This program served as a leveling component for entering college freshmen into the pre-engineering program at Odessa College as part of the CCRAA grant project. I oversaw project activity development, coordination of student mentors, and implementation of student projects. The project collaborated with mathematics faculty and various external sources, including Texas Tech University engineering faculty, the NSF, and NASA colleagues.

Service Activities

Angelo State University Service

2010 – 2011	Committee on Faculty Development and Enrichment Grants
	Quality Enhancement Plan Volunteer Program Team Chair

Odessa College Service

2008 – 2010	Odessa College Faculty Senate Representative for Sciences
	2009 – 2010 Faculty Senate Secretary
2009 – 2010	Odessa College Community Service Committee
2009	Geology Hiring Committee

Organizational Memberships

American Physical Society
Society of Physics Students
American Association of Physics Teachers

Publications

D.D. Neufeld, H.R. Dunham, S. Wethekam, J.C. Lancaster, and F.B. Dunning, *Ionization of Xenon Rydberg Atoms at Au(111) Surfaces: Effect of Stray Fields*, Physical Review B **78**, 115423 (2008).

D.D. Neufeld, H.R. Dunham, S. Wethekam, J.C. Lancaster, and F.B. Dunning, *Ionization of Xenon Rydberg Atoms at Oxidized Si(100) Surfaces*, Surface Science **602**, 7, 1306 (2008).

F.B. Dunning, S. Wethekam, H.R. Dunham, and J.C. Lancaster, *Charge Transfer Rates for Xenon Rydberg Atoms at Metal and Semiconductor Surfaces*, Nuclear Instruments and Methods in Physics Research B **258**, 61 (2007).

H.R. Dunham, S. Wethekam, J.C. Lancaster, and F.B. Dunning, *Ionization of Xenon Rydberg Atoms at Si(100) Surfaces*, Nuclear Instruments and Methods in Physics Research B **256**, 46 (2007).

S. Wethekam, H.R. Dunham, J.C. Lancaster, and F.B. Dunning, *Charge Transfer Rates for Xenon Rydberg Atoms at a Metal Surface*, Physical Review A **73**, 032903 (2006).

F.B. Dunning, H.R. Dunham, C. Oubre, and P. Nordlander, *Behavior of Rydberg Atoms at Surfaces: Energy Level Shifts and Ionization*, Nuclear Instruments and Methods in Physics Research B **203**, 69 (2003).