

# Dr. William M. Peterson

2825 Triple Crown Ln. #2  
Iowa City, IA 52240  
(319) 430-7820  
albedozero@gmail.com

## EDUCATION

### Ph.D. in Physics

### M.S. in Physics

University of Iowa, Iowa City, IA

Passed qualifying exam August 2007

Passed comprehensive examination November 2009

Graduated with Ph.D May 2011

*AUGUST 2005 – MAY 2011*

### B.S. in Astronomy, Physics and Mathematics

### B.A. in Philosophy

University of Iowa, Iowa City, IA

*AUGUST 1995 – MAY 2000*

## RESEARCH EXPERIENCE

### Research Assistant

University of Iowa Department of Physics and Astronomy, Iowa City, IA

Research Advisor: Dr. Robert L. Mutel

*JANUARY 2006 – MAY 2011*

- High sensitivity VLBI imaging of late-type binary stars
- Analysis of AKR growth under multi-dimensional computerized variation of electron velocity distribution and plasma parameters
- Representation of MARSIS data using geometric model of Martian crustal magnetic fields

### Research Assistant

University of Iowa Department of Physics and Astronomy, Iowa City, IA

*AUGUST 1997 – MAY 2000*

- Maintained robotic telescope facility equipment, set up and managed Linux network for data storage and analysis, scheduled nightly observation plans
- Coordinated research projects among undergraduate students
- Set up and tested lab equipment, taught lab course
- Designed and built a cross-wave dipole receiver for detecting Jovian Decametric emission

## RELEVANT WORK EXPERIENCE

### Laboratory Coordinator

University of Iowa Department of Physics and Astronomy, Iowa City, IA

*JANUARY 2012 – PRESENT*

- Responsible for coordination and training of astronomy teaching assistants
- Continually develop laboratory exercises for active learning environment
- Inventory, maintenance, proper storage of laboratory equipment and observing facilities, including two rooftop domes
- Manage and update software used in astronomy labs
- Maintain observatory web pages and remote telescope control suite
- Coordinate stargazing field trips and conduct community outreach activities

## Application Developer

University of Iowa Hospitals and Clinics Mental Health and Clinical Research Center,  
Iowa City, IA

*NOVEMBER 2000 – NOVEMBER 2002*

- Developed software for the analysis of neurological MRI images, assisted research assistants in the use of software
- Provided technical support to researchers in use of Linux/Unix/Windows systems and software
- Coordinated with researchers to formulate new directions of neurological research in conjunction with software development

## TEACHING EXPERIENCE

### Assistant Professor

Augustana College, Rock Island, IL

*AUGUST 2013– PRESENT*

- Design laboratory exercises and curriculum
- Maintain lab equipment
- Teach physics laboratory courses
- Teach general physics curriculum courses

### Adjunct Professor

University of Iowa Department of Physics and Astronomy, Iowa City, IA

*AUGUST 2011 – MAY 2013*

- Prepare lesson plans and lecture material
- Arrange lecture demonstrations
- Grade out-of-class assignments
- Prepare, administer and grade exams
- Assist in supervision of laboratory course

Courses Taught:

Fall 2011      029:050 – Stars, Galaxies and the Universe  
Fall 2011      029:021 – Physics I Laboratory  
Fall 2011      029:011 – College Physics Discussion  
Spring 2012    029:050 – Stars, Galaxies, and the Universe  
Spring 2012    029:022 – Physics II Laboratory  
Fall 2012      029:081 – Introductory Physics I  
Spring 2013    029:050 – Stars, Galaxies, and the Universe

### Visiting Professor

Grinnell College, Grinnell, IA

*JANUARY 2012 – MAY 2012*

- Provide one-on-one instruction in laboratory exercises
- Give detailed feedback on laboratory work
- Administer focused instruction on laboratory-related concepts

Courses Taught:

Spring 2012    132 – General Physics II Laboratory

### Teaching Assistant

University of Iowa Department of Physics and Astronomy, Iowa City, IA

*AUGUST 2005 – MAY 2007, AUGUST 2010 – MAY 2011*

- Prepare lecture and instruction material for lab courses
- Grade lab reports and exams
- Hold office hours for student questions
- Guide students and community members through night sky observations

Courses Taught:

Fall 2005      029:050 – Stars, Galaxies, and the Universe Laboratory  
Spring 2006    029:012 – College Physics II Laboratory

Fall 2006 029:050 – Stars, Galaxies, and the Universe Laboratory  
Fall 2006 029:008 – Basic Physics Laboratory  
Spring 2007 029:062 – General Astronomy II Laboratory  
Fall 2010 029:053 – Life in the Universe  
Spring 2011 029:050 – Stars, Galaxies, and the Universe Laboratory

### Adjunct Instructor

Kirkwood Community College, Tipton, IA

*AUGUST 2010 – DECEMBER 2010*

- Prepare and teach basic mathematics curricula
- Teach college-level math course to upper-level high school students

Courses Taught:

Fall 2010 MAT-115 – Math in Society

### Adjunct Instructor

Kirkwood Community College, Iowa City, IA

*AUGUST 2003 – DECEMBER 2010*

- Prepare and teach basic mathematics curricula
- Provide walk-in tutoring to students in mathematics lab

Courses Taught:

Fall 2003	MAT-107 – Survey of Math
Spring 2004	MAT-062 – Beginning Algebra
Summer 2004	MAT-052 – Pre-Algebra
Fall 2004	MAT-062 – Beginning Algebra
Fall 2004	MAT-107 – Survey of Math
Spring 2005	MAT-062 – Beginning Algebra
Fall 2005	MAT-062 – Beginning Algebra
Fall 2005	MAT-102 – Intermediate Algebra
Fall 2010	MAT-062 – Beginning Algebra

## PUBLICATIONS/CONFERENCE PRESENTATIONS

1. W. M. Peterson, R. L. Mutel, J.-F. Lestrade, M. Güdel, W. M. Goss, 2011 April, *Radio Astrometry of the Triple Systems Algol and UX Arietis*, eprint arXiv:1104.5005, The Astrophysical Journal, Vol. 737, p. 104
2. R. L. Mutel, W. M. Peterson, M. Güdel, W. M. Goss, 2011 January, *VLBI Astrometric Orbit Solutions of the Triple Systems Algol and UX Arietis*, American Astronomical Society Meeting #217, Abstract #105.05
3. W. M. Peterson, R. L. Mutel, M. Güdel, W. M. Goss, 2010 January, *A Large Coronal Loop in the Algol System*, Nature, Vol. 463, p. 207
4. W. M. Peterson, R. L. Mutel, 2010 January, *Probing Stellar Coronal Physics with VLBI Imaging*, American Astronomical Society Meeting #215, Abstract #419.26
5. W. M. Peterson, R. L. Mutel, W. M. Goss, 2009 December, *High-Resolution Radio Images of an Extrasolar Magnetosphere*, American Astronomical Society Meeting #213, Abstract #602.03
6. W. M. Peterson, R. L. Mutel, 2009 November, *Stellar Coronal Physics with VLBI Imaging*, American Physical Society, Inaugural Fall Meeting of the Prairie Section of the APS, Abstract #H2.041
7. R.L. Mutel, W. M. Peterson, T. R. Jaeger, J. D. Scudder, 2007 July, *Dependence of Cyclotron Maser Instability Growth Rates on Electron Velocity Distributions and Perturbation by Solitary Waves*, Journal of Geophysical Research, Vol. 112, p.A7

8. R.L. Mutel, W. M. Peterson, T. R. Jaeger, J. D. Scudder, 2006 December, *Dependence of AKR Growth Rate on Electron Velocity Distribution Parameters and Perturbation by Solitary Structures*, American Geophysical Union Fall Meeting 2006, San Francisco, abstract #SM53A-1447

## AWARDS/GRANTS

### Student Observing Support Grant

National Radio Astronomy Observatory – \$35,000

*AUGUST 2008 – MAY 2009*

The NRAO maintains a program to support research by students, both graduate and undergraduate, at U.S. universities and colleges. This program is intended to strengthen the proactive role of the Observatory in training new generations of telescope users.

### Graduate Student Internship

National Radio Astronomy Observatory – \$35,000

*AUGUST 2009 – MAY 2010*

## OUTREACH ACTIVITIES

### Hawk Eyes on Science

University of Iowa

Give public physics demonstrations to various organizations and groups with the goal of fostering interest in physics education and research.

*8 MARCH 2013* - Space Weather presentation to Cub Scout Troop at Coralville Children's Museum

### Venus Transit Public Viewing

University of Iowa

*5 JUNE 2012*

Provided solar telescopes and filters for viewing of Venus transit from rooftop of Van Allen Hall. Event open to public.

### Cedar Amateur Astronomers, Inc.

Palisades-Dows Observatory, Cedar Rapids, Iowa

Organize regular field trips for students to astronomy club facility, which includes lecture room and museum, three rotating domes, telescope shack with roll-off roof, and multiple pads for tripod telescopes. Give public lectures at monthly astronomy club events.

### Campaign to Organize Graduate Students

*AUGUST 2009 – MAY 2010*

Graduate employee organization that bargains with the University of Iowa for conditions of employment for graduate teaching and research assistants, affiliated with United Electrical Workers. Served as red area steward and subsequently president of local chapter. Served on bargaining team for 2009-2011 contract.

### Public Observing Nights

University of Iowa

Weekly rooftop night sky observing sessions, guided by astronomy students and professors, are held on the roof of Van Allen Hall when conditions permit, Monday through Thursday. Astronomy students attend a required number of sessions and members of the public are also welcome.