

*Department of Physics and Astronomy*

*2014 Year in Review*



University of Wisconsin  
Stevens Point

Scholarship Recipients:

**Arthur J. Pejsa Aerospace Award (\$1,000)**

- Kyle McEachen

**Monica E. Bainter Memorial Award (\$1,500)**

- Erin Sullivan

**Monica E. Bainter Scholarship (\$750)**

- Jesse Jahn
- Jacob Tatro

**Allen Blocher Scholarship (\$1000)**

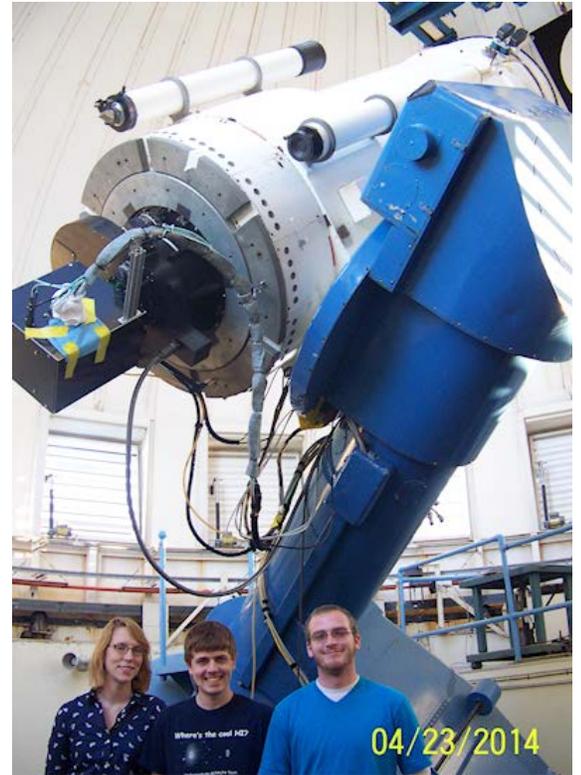
- Mae Voeun

**William C. and Esther Hansen Memorial Scholarship (\$1000)**

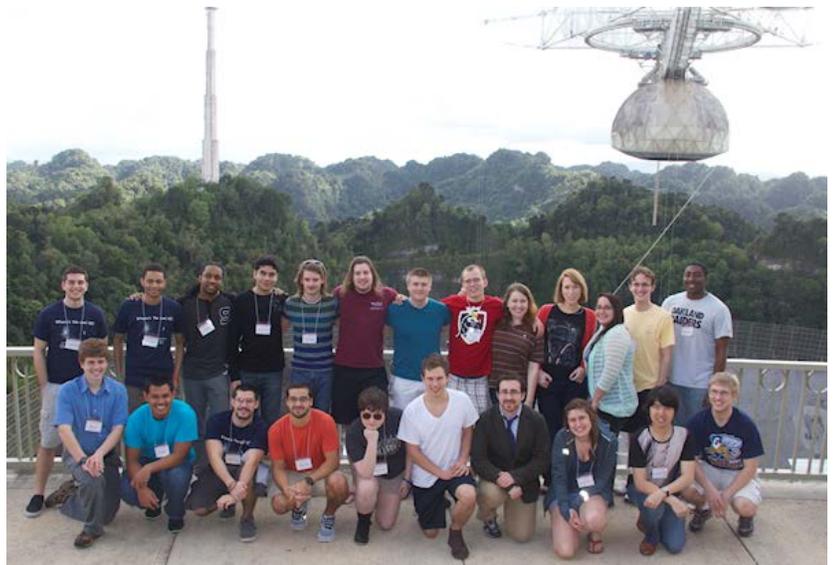
- Jacob Doney

Graduating Seniors:

- Jesse Anderson,
- Jane Christenson,
- Dan Dombrowski,
- Jeremy Falk,
- Sam Knapp,
- Kyle Leaf,
- Tim McAuliffe
- Sean Minster
- Jose Montoya
- Katrina Knass
- Taylor Richards
- Tim Twohig, and
- Chris Woitula



Students (from left) Jane Christenson, Kyle Leaf, and Jesse Jahn traveled to Kitt Peak National Observatory to participate in Adriana Durbala's research on galaxy photometry.



Jane Christenson (fourth from right, back row) and Kyle Leaf (far left, front row) participated in the Undergraduate ALFALFA Workshop at Arecibo Observatory, January 12-15, 2014.

## Notable Selected Activities and Accomplishments

Single-underline indicates a faculty/staff member, and double-underline indicates a student.

### External Grants

- Palash Banerjee received a grant of \$15,325 AR-WITAG Match Grant from UW-System for a project titled “Micromechanical torque magnetometer for characterizing magnetic nanoparticles”. This grant included funds to support the research effort of one student during the academic year 2013-14 as well Summer 2014.
- Palash Banerjee was awarded a National Science Foundation (NSF) Materials Research Facilities Network (MRFN) supplemental grant by Ohio State University, Columbus OH, for a project titled “Fabrication of Co/Pt dots having perpendicular magnetic anisotropy”. The project was funded an amount of \$5,000. These funds were used to travel to Ohio State University, Columbus OH for two weeks, learn micro-fabrication techniques in a cleanroom environment and prepare samples for research.
- Neil Oligney was awarded a research grant from Wisconsin Space Grant Consortium (\$2320) for the 2014-15 academic year: “Optical Spectroscopy of Low Redshift Radio Loud SDSS Quasars”. Faculty Advisor: Sebastian Zamfir.

### Publications, Presentations and Posters of Faculty and Students

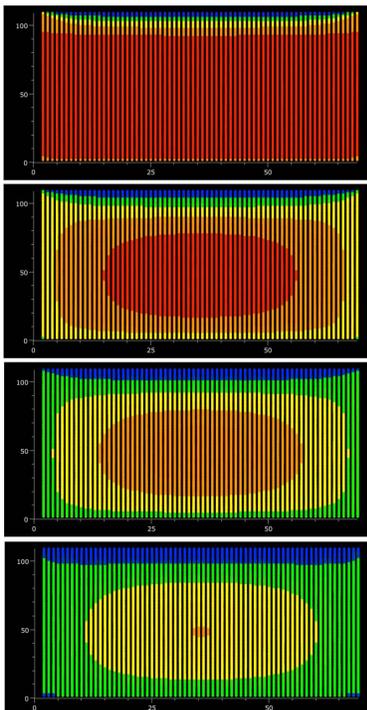
- Jane Christenson, Jesse Jahn and Kyle Leaf presented a poster titled “Exploring ‘Nature versus Nurture’ in a Photometric Study of Bulges in Early-Type Spiral Galaxies” at the COLS Undergraduate Research Symposium with Adriana Durbala on May 2, 2014
- Brad Hinaus and Sammy Chaa researched the surface tension of liquid crystal thin films.
- Jeremy Falk and Katrina Nass presented a poster titled “Search for Effective Electrodes for Photoelectrochemical Water Splitting” at the COLS undergraduate research symposium with Ken Menningen.
- Randy Olson with senior Tim Twohig produced a new program for the planetarium titled “Galaxies.” Presented initially in January, this program is now available for any group on a regular basis.
- Timothy McAuliffe and David Tamres presented a poster titled “Computational Modeling of the Chaos/Stability Bifurcations of an Inverted Kapitza Pendulum” at the Wisconsin Association of Physics Teachers Meeting, Eau Claire, WI October 26, 2013.
- Jesse Anderson presented a poster titled “Torque-Free Rotation of a Cube having a Nonuniform Mass Distribution” at the COLS undergraduate research symposium with David Tamres.
- Timothy McAuliffe presented a poster titled “The Inverted Kapitza Pendulum: Stability and Bifurcation Boundaries” at the COLS undergraduate research symposium with David Tamres.
- Travis Augustine created a set of virtual electronics labs to be used in the Physics 370 (Electronics) with Chris Verzani.
- Tim Twohig, Mae Voeun, Zach Perzynski presented a poster titled “Tension versus temperature measurements with freestanding liquid-crystal films” at the COLS undergraduate research symposium with Mick Veum.
- Neil Oligney presented a poster titled “A Spectroscopic Analysis of the Balmer H $\beta$  Broad Emission Line in Quasars with Extended Radio Morphology” at the 2014 COLS Undergraduate Research Symposium with Sebastian Zamfir.

#### Applied Emphasis Major

- Chris Cleworth and Michael Detert were newly admitted into the applied physics program with an emphasis in mechanics. Michael plans to participate in an internship at Donaldson Company, this summer of 2014.
- Chris Voitula and Taylor Richards successfully completed the Applied Emphasis major, and graduate this Spring 2014.

#### Outreach Activities

- Palash Banerjee presented a public lecture at the Portage County Library in Stevens Point titled “Ultrasensitive magnetic microscopy of individual nanomagnets”. This lecture was part of the COLS Community Lecture Series for **2013-14**.
- Adriana Durbala and Sebastian Zamfir presented the workshop titled “Let’s Make a Comet!” at UWSP STEM Career Day event, November 2, 2012 and at UWSP Women and Science Day, February 22, 2013.
- Brad Hinaus and Chris Verzani presented a workshop on magnetism titled “Swiper no Swiping” at College Day for Kids for two of the three sessions.
- Brad Hinaus and Chris Verzani presented a workshop on robotics in Astronomy titled “Mars Rover, Mars Rover, Please send Spirit Over” at College Day for Kids for two of the three sessions.
- Brad Hinaus described the career of a Physics and Astronomy professor and performed demonstrations for Career Days at St. Stanislaus Elementary School (K-3)
- Brad Hinaus served as an event supervisor for the Wisconsin Science Olympiad at UW Milwaukee for the maglev event. Student assistants were Sammy Chacara and Liza Wernicke. Michelle Stevens, associate lecturer, also assisted in the event.
- Randy Olson presented two LIFE classes during the year: 1) in October, the new program titled “Galaxies” and 2) in March, presented the newly revised show “Light Years from Andromeda.”
- The Blocher Planetarium presented programs to 6553 visitors (as of 30 April 2014), including university classes, school groups, community groups, and public programs. This is slightly better than last year’s 6456 at the same time.
- Sebastian Zamfir served as an event supervisor for the Wisconsin Science Olympiad at UW Stout. Student assistant was Neil Oligney.



Student Travis Augustine produced a numerical simulation of the cooling of a mug of coffee as a project for the Physics 315 *Computational Physics* course