Physics “Good News” Highlights for the 2008-2009 Academic Year

This past year, the Physics Department offered a wide range of courses: from general education to upper-division physics electives. Physics students had the opportunity to enroll in Computational Physics, Electromagnetic Theory I, II, III, Fundamentals of Lasers, and Quantum Mechanics II. Physics faculty also taught the UNIV 101 course to incoming freshmen and courses in the STEP curriculum (the NSF funded Science Talent Expansion Program). Some of the major accomplishments of CWU Physics faculty and students for the 2008-2009 academic year are listed below.

Student Scholarships
- Adam Hauk was accepted into the Ph.D. program in physics at Texas Tech University. He is receiving a teaching assistantship (approximately $16,000 per year) and a partial-tuition waiver.
- Travis Petersen received a full-tuition waiver and research fellowship (approximately $27,000 per year) to attend graduate school at the Institute of Optics, University of Rochester.
- Peter Wojcik was accepted into the Ph.D. program in applied physics at Oregon State University. He is receiving a teaching assistantship (approximately $18,000 per year) and a partial-tuition waiver.

Student Grants and Awards
- Travis Petersen received a CWU Alumni Award in October 2008.
- Travis Petersen, recipient of the “Dean’s Award” from the Center for Excellence in Leadership, May, 2009.
- “Outstanding Presentation” received by Travis Petersen at Source 2009.
- “Outstanding Presentation” received by William Sizemore at Source 2009.

Club Awards
- The CWU Society of Physics Students Chapter received the “Outstanding SPS Chapter” Award for the 2007-2008 academic year from the national society. This is the twelfth time CWU’s Chapter has received this award in the past fifteen years. Only 56 of the almost 800 chapters in the nation received the award. Evan Masters, physics graduate, was the chapter president last year. Sharon Rosell, physics, is the chapter advisor.
- The CWU Astronomy club is a member of the Night Sky Network, sponsored by NASA (http://nightsky.jpl.nasa.gov/index.cfm). The club is consistently listed is
“Stars in the Network” for “clubs who regularly share the sky and the inspiration of NASA with their communities”.

Student Presentations (SOURCE 2009)

Oral Presentations
- Kevin Ewell, “A computational study of tsunami run up as a function of coastline morphology” [Advisor: Andy Piacsek]
- Adam Houk, “Scattering of Plane Light Waves” [Advisor: Mike Braunstein]
- Travis Petersen, “Frequencies and Wavelengths From a New Far-Infrared Lasing Gas: $^{13}$CHD$_2$OH” [Advisor: Mike Jackson]

Poster Presentations
- Jeff Leiseth, “Operating Characteristics and Research Applications of the Carbon Dioxide Laser” [Advisor: Mike Jackson]
- William Sizemore, “Using the Force Concept Inventory to Improve Student Understanding of Frictional Forces” [Advisors: Bruce Palmquist and Mike Jackson]

Science Honors Theses
- Kevin Ewell, “A computational study of tsunami run up as a function of coastline morphology” [Advisor: Andy Piacsek]
- Travis Petersen, “Frequencies and Wavelengths From a New Far-Infrared Lasing Gas: $^{13}$CHD$_2$OH” [Advisor: Mike Jackson]

Faculty Awards
- Mike Jackson received a “Volunteer of the Year” award from the Council on Undergraduate Research for his efforts as Councilor for the Physics & Astronomy Division and as Chair of the CUR Fellows Task Force in June 2009.
- Bruce Palmquist received the Crystal Apple Award from the Professional Education Advisory Board for Teacher Preparation in June 2009.

Faculty Grants [funded]
- Mike Jackson, “Enhancing NASA Related Research and Education at Central Washington University”, $20,000$ (with $20,000$ matching funds) NASA/Washington Space Grant Consortium (2009-2010).
• Bruce Palmquist, “Developing the curriculum for PHYS 106”, 2 WLU release, Center for Excellence in Science and Mathematics Education
• Andy Piacsek, “Computer simulation of atmospheric turbulence effects on sonic boom propagation,” COTS Faculty Summer Research Grants, $3,000 (2009).

Faculty and Student Publications
• Mike Jackson has had his journal article entitled “The rotational spectrum of the FeD radical in its X$^4\Delta$ state, measured by far-infrared laser magnetic resonance” accepted for publication in the Journal of Chemical Physics.
• Bruce Palmquist publishes a weekly column in the Ellensburg Daily Record entitled “What’s Up in the Sky.” His blog can be found at http://theellensburgsky.blogspot.com/.

Invited Faculty Conference Presentations
• Bruce Palmquist presented “100 Hours of Astronomy” at the 2009 annual meeting of the Pacific Northwest Association of College Physics in April 2009.
• Andy Piacsek presented “My voice looks like that? A hands-on and textbook free approach to learning physics” at the 11th annual meeting of the Northwest Section of the American Physical Society in May 2009.

Faculty Conference Presentations
• Andy Piacsek presented “Numerical simulation of sonic boom propagation through atmospheric turbulence” at the 156th Meeting of the Acoustical Society of America in November 2008.
• Andy Piacsek presented “Numerical Modeling of weak shock propagation: past, present, and future” at the 157th Meeting of the Acoustical Society of America in May 2009. He also organized and chaired the session “Numerical Methods for Weak Shock Propagation”.

Faculty Presentations
• Bruce Palmquist, with physics majors Feliciti Fredsti and Marilyn Magenis, wrote, recorded, and produced a podcast for 365 Days of Astronomy. The podcast, called “Edward, Annie, and Williamina discuss spectral classification” captures a hypothetical discussion between three well known astronomers from the early 20th century as they talk about stars and the role of women in science. Listen to it at
• Bruce Palmquist wrote, recorded, and produced a podcast for 365 Days of Astronomy. The podcast, called “A cheap “Name a Star” Gift for College Graduates”, was broadcast May 23, 2009. Listen to it at http://365daysofastronomy.org/2009/05/23/may-23rd-a-cheap-
%E2%80%9Cname-a-star%E2%80%9D-gift-for-college-graduates/.

Faculty Professional Activities
• Mike Braunstein and Sharon Rosell attended the annual meeting of the Pacific Northwest Association for College Physics in April 2009. As treasurer of the organization, Sharon gave the treasurer’s report and attended the Board of Directors’ Meeting. Sharon was elected president of the organization and Mike Braunstein was elected to the Board of Directors.
• Mike Jackson served as a reviewer for the National Science Foundation (RUI and CRIF:ID proposals) and the Journal of Physics D: Applied Physics.
• Mike Jackson attended the annual Council on Undergraduate Research (CUR) business meeting, June 2009. He serves as councilor for the Physics and Astronomy Division and as Chair of the CUR Fellows Task Force. Accomplishments: Selection of 2010 CUR Fellows; Physics and Astronomy Councilors approved a document supporting an undergraduate research experience for every physics major (received support from SPS and APS – Committee on Education with similar or identical statements).
• Bruce Palmquist served as reviewer for the CCLI program at the National Science Foundation.
• Bruce Palmquist attended an invitation-only physics symposium on undergraduate physics sponsored by McGraw Hill Publishers from February 26 to March 1, 2009 in Austin, Texas. Professors provided information and feedback on the latest physics teaching curricular materials and strategies.
• Bruce Palmquist and Mike Jackson serve on the Math-Science Partnership Grant Steering Committee for the Yakima School District.
• Andy Piacsek serves as Chair of the Public Relations Committee of the Acoustical Society of America, as Chair of the Science Writing Award subcommittee, and as a member of the AIP Science Writing Award committee.
• Andy Piacsek serves on an ad hoc committee of the Acoustical Society that is making recommendations for the design of an educational web site for kids on the subject of acoustics.
• Andy Piacsek reviewed a manuscript for a textbook: "Computational Physics" for Jones and Bartlett Publishers.
• Andy Piacsek attended the 14th Workshop for New Physics and Astronomy Faculty, Nov. 6 - 9, 2008. This workshop is sponsored by the American Physical Society, the American Astronomical Society and the American Association of Physics Teachers.
Outreach Programs

- Mike Jackson, Greg Lyman, and Erin Sargent performed two shows of the “Physics Extravaganza” for the 6th grade class at Morgan Middle School in September 2008. There were 270 students, teachers and guests in attendance.

- Mike Jackson performed “Kaleidoscopes,” eleven shows for the third grade classes at Lincoln Elementary School, Mt. Stuart Elementary School, Valley View Elementary School, and Kittitas Elementary School in December 2008. There were 290 students, teachers and guests in attendance.

- Mike Jackson performed “Circuits,” three shows for 140 5th and 6th grade students and teachers from Morris Scott Middle School (Mattawa, WA) in May 2009.

- Bruce Palmquist and the CWU Astronomy Club performed a planetarium show for Saddle Mt. Intermediate School (Mattawa, WA) for about 150 students and teachers.

- Bruce Palmquist and the CWU astronomy club performed numerous star party and planetarium shows for school groups and the general public. One such event was the “Nature of Night” program in November 2008 where a total of 225 participants attended.

- Andy Piacsek presented an acoustics workshop to the Ellensburg High School physics class (May 2009).

- Sharon Rosell and the SPS Club performed several physics outreach programs for the “Expanding Your Horizons” event at CWU (80 students) and St. Andrews Preschool (15 students).

- Sharon Rosell presented four “Planets” shows to about 100 participants for the “Nature of Night” event in November 2008.

- Bruce Palmquist, Pete Wojcik and other CWU Astronomy club members presented three astronomy lessons to a home school group in Yakima (60 students).