Message from the Chair

In any communication at the end of the spring semester, it is always tempting to encourage our members to “have a productive summer of research with students”. However, this seems to only reinforce the notion that research does not happen during the academic year. Indeed, one way to think of CUR is that it is the only faculty-based organization that advocates for the seamless integration of scholarly activity with teaching. We are still a long way from accomplishing that— but new initiatives such as the travel awards for attendance at the National Conference on Undergraduate Research and the continuing interest in CUR-sponsored departmental review teams is an encouraging sign that our message is getting heard.

Another very encouraging sign is the election of three new councilors: Maria Bautista (Kapi‘olani Community College), Liubov Kreminska, (University of Nebraska at Kearney), and Mohammad Samiullah (Truman State University). I am also very pleased to announce that Michael Jackson is the incoming chair of the Physics and Astronomy Division. Mike has been the chair of the Physics Department at Central Washington University and he was formerly in the Physics Department at University of Wisconsin-LaCrosse.

So, in closing, I hope your summer is not the start of a productive research period, but rather is another phase of a continuing program of engagement with undergraduate students.

Dave McGee
Chair, CUR Division of Physics and Astronomy
The College of New Jersey
mcgeed@tcnj.edu

Significant Changes Coming to NSF Education Programs

With regard to federal funding, Bob Dylan’s 1965 classic, “The times, they are a-changin’,” is an apt description of what is happening to grant programs at the federal level. Of particular importance to those working to address STEM education needs are the grant programs at the National Science Foundation (NSF). Here, significant changes are on the horizon.

One has only to look at the President’s FY2014 budget to see that dramatic changes are being proposed in STEM education.1 Under the plan, NSF is to become the government-wide leader in undergraduate STEM education (the Department of Education is to assume responsibility for K-12 education and the Smithsonian will lead informal education activities). The budget plan directs NSF to consolidate three Division of Undergraduate Education programs2 and four undergraduate education programs funded through NSF’s research divisions’ Research and Related Activities accounts3 into a single program, Catalyzing Advances in Undergraduate STEM Education (CAUSE). CAUSE is intended to “couple STEM disciplinary expertise with education research expertise to better understand and improve undergraduate STEM learning and persistence of students from all groups and to support STEM workforce development.”

The immediate impact is that there will be no new NSF Transforming Undergraduate Education in STEM (TUES) solicitation this spring or summer in anticipation that TUES will be folded into the new CAUSE initiative. For NSF’s
Widening Implementation and Demonstration of Evidence-based Reforms (WIDER) and STEM Talent Expansion Program (STEP), NSF still has solicitation deadlines posted on its web site in 2013 (July 3, 2013, and December 3, 2013, respectively). Should these solicitations stand\(^4\), it is anticipated that this will be the last solicitation for both of these programs. For those with currently-funded TUES, STEP and WIDER projects, these awards should run through the end of their grant periods.

When will the first CAUSE solicitation appear and what will the CAUSE program support? At this time, no one really has definitive answers to these two questions. One would expect that, in concert with the President’s FY2014 budget request to Congress, NSF will release a CAUSE solicitation in FY2014. What the specifics will be for CAUSE projects will not be known until the actual solicitation is posted. The only thing one can say is that by federal statute, the NSF will have to give the community a 90 day notice before CAUSE proposals are due. At this time, the most complete information that is available on the CAUSE initiative is in the FY 2014 budget document\(^1\).

All of the above assumes, of course, that Congress will adopt the President’s FY2014 budget and education plan and that Congress will actually \textit{PASS} a FY2014 budget. Whether or not this will happen is anyone’s guess. The issue also transcends the NSF. Undergraduate education programs exist at the Department of Energy, NASA, National Institutes of Health, and Department of Defense, among others. These agencies have generally viewed their undergraduate programs as a way to attract future talent to their laboratories and research facilities. Will these agencies willingly give up their undergraduate education programs and let the programs go quietly into the night?

The best advice one can give at this time is to “stay tuned.” Be certain to monitor the NSF’s web site for updates and changes to all of NSF’s STEM education solicitations and awards (www.nsf.gov) and the education web sites at the other federal agencies.


\(^2\)Transforming Undergraduate Education in STEM (TUES, formerly CCLI), STEM Talent Expansion Program (STEP) and Widening Implementation and Demonstration of Evidence based Reforms (WIDER).

\(^3\)BIO’s Transforming Undergraduate Biology Education (TUBE), ENG’s Research in Engineering Education and Nanotechnology (NUE), GEO’s Geosciences Education and Opportunities for Enhancing Diversity in the Geosciences (OEDG) and the cross-NSF program Climate Change Education (CCE)

\(^4\)With its impending solicitation deadline, the WIDER competition is almost certain to take place. With a late 2013 solicitation deadline, the future of the STEP competition is less certain.

\textit{John Mateja}  
\textit{Murray State University}

\textbf{NCUR 2013}

The University of Wisconsin-La Crosse (UW-L) hosted the 27th National Conference on Undergraduate Research (NCUR) on April 11-13, 2013. The student presentation formats included oral presentation, posters, visual arts, and performance. In addition, the students had an opportunity to publish their scholarly work in the NCUR Conference Proceedings.
For NCUR 27 we had 3502 registrants, 2863 undergraduate student presenters representing 354 institutions from all over the nation and 6 other countries and territories. The program included 55 performance/visual arts presentations, 1253 oral presentations, and 1272 poster presentations.

The conference hosted a Graduate and Professional School Fair for participants interested in pursuing graduate studies, providing an opportunity to interact with 114 graduate and professional schools’ representatives from across the country. In addition, five presentations on how to prepare for and apply to graduate and professional schools and on career opportunities were offered to students. Many conferees explored local areas of interest by taking part in excursions and tours.

**Plenary Sessions:**

**Will Steger** is a recognized authority for the polar regions, including their environmental issues, and is an eyewitness to the effects of global warming. He has spent more than 45 years traveling through the Arctic regions, advocating for the earth’s preservation and advising about permanent solutions to our climate crisis.

**Dr. Hazel A. Barton,** Associate Professor of Biology, and Geology and Environmental Science, in the Department of Biology at the University of Akron. Her current research is geared toward understanding microbial processes, interactions, and geochemistry in cave environments.

**Bill Miller** has long been one of the most admired figures in the Native American music arena and beyond. As an award-winning recording artist, performer, songwriter, activist, and painter, he’s been a voice for the voiceless, a link between two great and clashing civilizations. He is a Mohican Indian, singer/songwriter and winner of two Grammy Awards.

**Friday International Night Event:**

The theme of the Friday International Night Event was “**Bridging Creativity and Culture While Building Global Communities**”. This event was a collaboration between NCUR and the University of Wisconsin-La Crosse Office of International Education. NCUR participants and individuals from UW-L and the greater La Crosse Area dined on international cuisine including dishes from India, Ecuador, Saudi Arabia, South Korea, Germany, and Spain. The dishes were inspired by UW-L’s international students and prepared by UW-L dining services. Participants were then treated to international cultural entertainment performed by UW-L’s international students; performances included Chinese, Indian, Japanese, and Vietnamese dances and Korean drummers.

**Physics and Astronomy Presentations at NCUR 2013**

There were 16 Astronomy presentations (8 oral and 8 poster presentations) and 96 presentations in Physics (45 oral and 51 poster presentations). The Physics and Astronomy student presenters, their affiliations, title of their presentation, and their mentors are listed below.

**Gubbi Sudhakaran and Ron Rada**

*University of Wisconsin-La Crosse*

**Physics and Astronomy at NCUR**

Congratulations to the following undergraduate students who gave oral or poster presentations about their physics and astronomy research at the 2013 NCUR meeting:

**Astronomy Oral Presentations:**

- Ryan Avril, Westminster College: Exoplanet Search from Westminster College (Thomas Oberst)
- Steven Bartel, U WI Oshkosh: Improved Distance Estimates to Galactic HII Regions (Nadia Kaltcheva).
Rossen Chemelekov, UCLA, and Kevin Konevsky, Northridge: Design of a Transverse Field Magneto-Optical Filter (Neil Murphy, Paul McCudden)

Christophere Clement, Oakland U: Twinkle, Twinkle Little Star (Graeme Harper)


Brandon Day, Los Angeles Valley College: High Precision Astrometry of Occulting Asteroids (William Owen, David Falk)

Cheuk Man Lo, U WI La Crosse: Examining Supernova Remnant GSH054-00+003 (Shauna Sallmen).

Mitchell Matheny, U WI Oshkosh: Precision Photometry of the Scutum-Serpens-Sagittarius Star-Forming Field (Nadejda Kaltcheva)

Physics Oral Presentations:

Iwnetim Abate, MN State Moorhead: Fabrication and Characterization of Metal-Patterned SrCo0.9Nb0.1O3-d Thin Film Cathodes with Well-Defined Geometry (Sossina Haile)

Hank Anderson, Banchong Somsanuk, and Ulises Urbina, CA State Fresno: Constructing a Relaxation Calorimeter (Pei-Chun Ho)

Stuart Baxley, Guilford College: Dependence of Wooden Longboard Flexibility on Deck Concavity (Steven Shapiro)

Benjamin Beck, Northern IA: Three Dimensional Nanostructures on Layered Materials (Timothy Kidd)

Alec Bowcock, Pacific U: Low Threshold Optical Limiting in solid-Core Photonic Crystal Fibers (James Butler)

Nathan Brady, Thien An Nguyen, Giovanni Milone, Robert Alfano, City College of NY: Efficient Multiplexing and Demultiplexing of Light’s Angular Momentum (Liubov Kreminska)

Zily Burstein, Loyola Marymount: Conformal Gravity and the Alcubierre Warp Drive (Gabriele Varieschi)

Craig Cahillane, Notre Dame: Vortex Lattice Form Factor Modeling in Type II Superconductive Borocarbides (Morten Eskildsen)

Matthew Cales, Guilford College: Effect of Impact Surface Roughness on Whether Droplets Splash or Oscillate (Steve Shapiro)

Michele Coker, Western Carolina: Atmospheric Stratification of Terrestrial Gamma-ray Flashes (TGFs) and Capture of Electromagnetic Phenomenon in the Southern Appalachian Mountain Region (Enrique Gomez)

Rachael Creager, Notre Dame: Analysis of a Potential Tracking Algorithm for the SLHC Upgrade (Kevin Lannon, Mike Hildreth)

Conor Delaney, Northern IA: Optical Spectroscopy of Topological Insulators (Rui He)

Colin Egerer, U WI La Crosse: Investigating Dark Matter Halos and Their Influence on N-Body Simulations of Galaxy Formation (Eric Barnes)

Brent Glassman, James Madison: One-Proton Breakup of 18F and the 17O (P, Gamma)18F Reaction in Classical Novae (Adriana Banu)

Nicholas Hagans, James Madison: Extensional Rheology of a Two Dimensional Foam (Klebert Feitosa)

Juliana Hernandez, Jerika Mantuano, and Mimi Parker, Los Angeles City College: Development of a Low Cost, Compact, and Configurable Raman Spectroscopy System (Jayesh Bhakta)

Jessica Hurlbut, Western Carolina: Mass Transfer and Stellar Jets in Binary Star System Beta Lyrae (Enrique Gomez)

Ran Ikeyama, U WI La Crosse: Assembling, Characterizing, and Measuring the Efficiency of VANDLE (Shelly Lesher)

Bryan Isherwood, James Madison: Assembly and Calibration of Photo-multiplier Tubes for use in Large Scale particle Experimentation at Jefferson Laboratory (Kevin Giovanetti)

Rory Jones, U ND: Scanning Tunneling Microscopy Study of Self-Assembled Monolayers (Dylan Nicols, Nuri Oncel)

Adam Kindle, U WI La Crosse: Optical Properties of Zinc Oxide Nanolaminate Materials (Seth King)

Brandon Krouppa, Jacksonville U: Simulation of Kicker Differential Decay Systematic Error for the Brookhaven g-2 Experiment (W. B. Lane)

Joseph Krueger, U WI La Crosse: Investigation of Conductivity and Optical Transmittance of ZnO/CuO Thin Films (Seth King)
• Holly Leopardi, Humboldt State: Precision Optical Systems for Short Range Tests of Gravity (C. D. Hoyle)
• L. Jake Magness, Rhodes College: Enhancing Atomic Current in Energetically-Gapped Optical Lattices (Ronald Pepino)
• Ian Marsh, U WI La Crosse: ASIC Readout System for Use with a Silicon Detector Array (SAND) (Shelly Lesher)
• Dilyana Mihaylova, Rochester: Single-Emitter Fluorescence in Nanostructures for Single Photon-Source Applications (Svetlana Lukishova)
• Jeremy Peshl, Grand Valley State: Study of Light Intensity and Spectral Analysis of an Inexpensive Single Bubble Sonoluminescence Experiment (Karen Gipson)
• Andrew Prudhom, U WI La Crosse: Characterizing and Enhancing the Single-Hoton Sensitivity of Quantum-Dot Optically Gated Field-Effect Transistors (Eric Gansen)
• Emma Reeves, Hamline: Current Correlation from Dual Field Emission Tips (Kevin Stanley)
• Kyle Rendon, San Jose State: The Study of Multiple Asteroids Through Adaptive Optics (Franck Marchis, Monika Kress, Cynthia Phillips)
• Joseph Roring, UT Valley: High-Frequency Ultrasound of Breast Tissue Phantoms Containing Microscopic Heterogeneities (Timothy Doyle)
• Adrian Sanabria-Diaz, Kayla McMahon, Jeffrey Brittenham, Joshua Moravec, and Nathan Brady, U NE Kearney: Espansion of EPA RadNet Protocol for Dosimetry (Robert Price)
• Andrew Santoso and Sheldon Lee, Viterbo: Simulating Ultrasound Echo Signals using MATLAB (Anthony Gerig)
• David Smith, Humboldt State: Tests of Gravity below the 50-micron Distance Scale (C. D. Hoyle)
• Patrick Snyder, Eastern IL: Signal Interpretation of Nanocantilever-Based Biosensors (Amitabh Joshi)
• Breanna Swan, Viterbo: Estimating Tissue Particle Sizes Using Ultrasound (Anthony Gerig)
• Lucas Swanson, James Faraday, Nathan Gretz, Jessica Stensland, Udit Kapur, Mithila Umanga Mangedarange, Bamunu Achchi Mangedarage, and John Clymer, MN State: Target Development to Optimize 13N Extraction from Graphite (Andrew Roberts)
• Elizabeth Tennyson, U WI La Crosse: Surface Morphology of Annealed Copper-Doped Zinc Oxide Films (Seth King)
• Laurel Thompson and James Pearson, UT Valley: Methods for Identifying Aerosols by Light Scattering Techniques (Timothy Doyle)
• Michael Trietsch and Yevgenly Kvasnini, Adelphi: Incoherent Broadband Cavity Enhanced Absorption Spectroscopy for Trace Measurements of NO2 with an LED Source (Andreas Karpf and Gottipaty Rao)
• Zachary Tully, U WI La Crosse: Exploring the Collective Properties of Gadolinium 160 (Shelley Lesher)
• Kyle Williams, Guilford College: Predicting Angular Velocities of Rotating Systems using the Parker-Sochacki Numerical Method (Steven Shapiro)
• Ryan Wilson, U Memphis: Metal-Polymer Bilayer System Characterization Under Low Temperature Conditions (Firouzeh Sabri)
• Adam Zart, Viterbo: The Development of Polymeric Phantoms (Anthony Gerig)

Astronomy Poster Presentations:
• Stephanie Bessler, U WI Whitewater: An Investigation of Mid-Infrared Selected Start Clusters (Robert Benjamin)
• Matthew Bovyn, Northern AZ: Laboratory Studies of Ices Found in the Outer Solar System (Stephen Tegler)
• Danielle Citro, SUNY Oswego: Period-Luminosity Relations for Small Magellanic Cloud Cepheid Based on AKARI Archival Data (Shashi Kanbur)
• Timothy Conard, U WI Oshkosh: Cepheus Star-Forming Field (Nadejda Kaltcheva)
• Andrew Rowe, James Madison: The Search for Companions Using Debris Candidates (Harold Butner)
• Kathryn St. Laurent, Bridgewater State: Observing Transits of CoRoT-2b (Martina Arndt)
• Jeffrey VanKerkhove, Rochester: The Nonlinearity of the First Overtone Cepheid PL Relation (Shashi Kanbur)
• Loryn Zachariasen, U WI Whitewater: The Nature and Distribution of Star Formation in the Outer Milky Way Galaxy (Robert Benjamin)
• Michael Zeilhofer, Western CT State: Light Curve Analysis for Transiting Exoplanets (Dennis Dawson)
Physics Poster Presentations:

- Roxanne Accola, U WI Eau Claire: Heat Transfer Capacity of the Extremities in Diabetics (Matt Evans)
- Todd Adams, Towson: Bending Optical Space for Luneburg Lens and Cloaking Applications (Vera Smolyaninova)
- Elaura Aguilar, Middle TN State: Physical and Mechanical Properties of the Human Red Blood Cells with Different Hemoglobin Types (Daniel Erenso)
- Laura Alderson, St. Norbert College: Coherent Light Generation Using Four-Wave Mixing (Erik Brekke)
- Volker Beutner, West GA: Investigation of CdSe Quantum Dots with Different Sizes Fabricated by Photolithography Method (Ajit DeSilva)
- Steven Boi, Northern IL: Proton Computed tomography and NICADD/Fermilab’s Next Generation Device (David Hedin)
- Andrew Carlson, U WI Platteville: Domain Wall Conduction and Photovoltaic Effect in BFO Ferroelectric Thin Films Studied by Photo-conductive Atomic Force Microscopy and Piezoresponse Force Microscopy (Yan Wu)
- Monica Cervantes, UT Valley: Real-Time Pathology with High-Frequency Ultrasound: A Feasibility Study using Bovine Tissues (Timothy Doyle)
- Angela Chang, Appalachian State: Single Nanoparticle Temperature Measurements within a Membrane Profiled with Fluorescence and Raman Spectroscopy (Brooke Hester)
- Claire Chow, ID State: Differences between Experts and Novices in the Ability to Detect Changes in Physics Images (Jose Mestre)
- Brendan Clark, Bloomsburg: A Non-Intrusive Acoustic Analysis of Advertisement Calls by Fowler’s Toad: Dwarfism Affects Resonant Frequency More than Dominant Frequency (John Huckans)
- Nathan Crossette, Muhlenberg College: Simulating Quarks with String Theory (Adam Clark)
- Gerardo Gonzalez, Puerto Rico Humacao: Self-Assembly and Morphological Characteristics of a Ply (Vinylidene Fluoride) “Root-Like” Structure Containing Nanofibers Formed Using a Modified Electrospinning Process (Rogerio Furlan)
- Eric Hall, Stetson: A Dynamic computational Study of the Role of Ion Channels in a Neuron (Danielle Morel)
- Lance Hildebrand, U WI La Crosse: A thermodynamic Approach to Analyzing N-Body Simulations of Galaxy Formation with Dark Matter (Eric Barnes)
- Scott Ho, U UT: Electrical Characterization of Topological Insulators (Pablo Jarillo-Herrero)
- Maximiliano Isi, Loyola Marymount: Distinguishing Polarizations in Continuous Gravitational Waves (Alan Weinstein)
- Jonathan Ivey, Appalachian State: LIDAR and CIMEL-based Measurements of Seasonal Variation in Select Atmospheric Properties (James Sherman)
- Aaron Johnson, Black Hills State: Methane Detection with Cavity Ring-Down Spectroscopy for Dark Matter Experiments (Kara Keeter)
- Allison Kubice, U WI La Crosse: Spray Pyrolysis of ZnO Thin Films (Seth King)
- Ryan Landry, West GA: Polymer/PbS Quantum Dots Composite Systems for Low Cost Broad Band Photo-detectors (Ajith DeSilva)
- Jason Leicht, U WI Eau Claire: Fabrication of Silicon Carbide Nanowires for Use in Electronic Devices (Douglas Dunham)
- Holly Leopardi, Humboldt State: Short Range Tests of Gravity (C.D. Hoyle)
- Raymond Lopez-Hallman, Puerto Rico Humacao: Electrospinning of Nanofibers Solutions with PVDF, DMF, acetone, and Fe$_3$O$_4$ Nanoparticles (Juan Gonzalez)
- Marcus Lowe, U WI La Crosse: The Reality of Nuclear Power (Shelly Lesher)
- Kayla McMahon, U NE Kearney: Alignment of gold Nanoparticles by Liquid Crystals to Develop Visible Light Polarizers (Liubov Kreminska)
- Ellendorf Michael, Black Hills State: A Cavity Ring-Down Spectroscopy System for Sub-ppb Oxygen Measurements in Argon (Kara Keeter)
- Qurat-ul-Ann Mirza, IN U-Purdue: Memristor Brain: Can we make an Axon for Semiconductor Memristors? (Yogesh Joglekar)
- Aaron Mohammed, Barry: The Impact of Physics beyond the Standard Model on the Blue Loop Phase of Stellar Evolution (Maurizio Giannotti)
• Joshua Morovec, U NE Kearney: Data Analysis of an Expansion of the EPA’s RadNet Radiation Dosimetry Protocol (Robert Price)
• Maryke Moreau, Norwich: Maximizing Light Yields Using Different Concentrations of LAB-PPO (Robert Knapik)
• Tyler Nickel, U WI La Crosse: Enhancing the Performance of Quantum-Dot-Based Single-Photon Detectors using Resonant RLC Circuitry (Eric Gansen)
• Alec Nicol, U MN Twin Cities: Development of a Graphene Field Effect Transistor for GHz/THz Sensing (Junichiro Kono)
• Promise Okeke, Augsburg College: Comparison of Line Tension Measurements in Lipid Monolayer (Benjamin Strottrup)
• John Oldaker, George Mason: Orientational Order of Anisotropic Magnetic Nanoparticle Clusters in Dispersions in an Applied Field and Shear Flow (Krishnamurthy Vemuru)
• Jenna Osborn, Appalachian State: Engineering Collagen Networks (Brooke Hester)
• Edward Park, Hampden-Sydney College: Modeling White Dwarf Star Magnetization (Hugh Thurman)
• Alex Roche, Bridgewater State: Computer Programming to Advance Gravitational Lensing (Thomas Kling)
• James Sartor, Auburn: Ion/Anion Pair Production in H₂ via Fast Electrons (Allen Landers)
• Koichi Sato, U NE Kearney: Reduction of Phase at Different Incident Angles of a Spatial Light Modulator (Luibov Kreminska)
• Kevin Seltzer, Loyola: finite Temperature Casimir Effect for a Massless Scalar Field in a Magnetic Field (Andrea Erdas)
• Joseph Shaw, Auburn: Effects of an External Perturbation on an Existing Dusty Plasma (Edward Thomas)
• Patrick Snyder, Eastern IL: Synthesizing New Modes of Force Microscopy for Nanomechanical Studies (Amitabh Joshi)
• Paul Valle-Rivera, Puerto Rico Humacao: Influence of a magnetic Field in the Electrospinning of Nanofibers Containing Fe₃O₄ Nanoparticles (Juan Gonzalez)
• Khalid Wabli, Northern AZ: Real Time Imaging of Biological Structures Using Digital Holography and Tomography (Christopher Mann)
• Christopher Wing, CUNY Brooklyn College: Surface Potential near the Threading Dislocations in p-type Doped ZnO Probed by Scanning Probe Microscopy (Mim Ial Nakarmi)
• Garrett Wise, Northern IL: Structural Analysis of Palladium-Gold Nanostructures for Hydrogen Fuel Cells (Yasu Ito)
• Garrett Wise, Northern IL: Fabrication and Analysis of Free-Standing Aluminous Ultra-Thin Films using Electron Microscopy (Yasu Ito)
• Yujun Xie, Drexel: Doping Dependence of the Electronic Properties of LaxSr₁₋ₓFeO₃ Epitaxial thin Film (Steve May)
• James York-Winegar, Austin Peay State: Wavelength Dependence of Photoinduced Effects in Ax(x)S(100₋ₓ) Amorphous Thin Films (Kovalskiy Andriy)

2013 NCUR Travel Award
This year, the Physics and Astronomy Division instituted an award for students to attend the 2013 National Conference on Undergraduate Research at the University of Wisconsin-LaCrosse. The award paid for student registration at the conference, and was available to the students of all CUR Physics and Astronomy members. Congratulations are therefore in order for the following students and their mentors for receiving the 2013 CUR Physics and Astronomy NCUR Travel Award:
• Iwnetim Abate, Minnesota State University, Moorhead. Mentor: Matthew Craig.
• Ryan Anderson, Black Hills State University. Mentor: Andy Johnson.
• Eric Hall, Stetson University. Mentor: Kevin Riggs.
• Ryan Landry, University of West Georgia. Mentor: Ajith De Silva.
• James York-Winegar, Austin Peay State University. Mentor: Andriy Kovalesky.

The Physics and Astronomy division expects to continue offering this award for future NCUR meetings, so please watch future newsletters for the opening of the
application process. The P&A division gratefully acknowledges the financial support of the CUR National Office for making this award possible.

David J. McGee
The College of New Jersey

2013 Posters on the Hill

This year, Posters on the Hill (PotH) received over 750 completed applications from over 300 colleges and universities. There were a number of high quality submissions and selecting 60 abstracts for the event would not have been possible without the thoroughness of reviewers and the quality comments they provided. Five physics and astronomy abstracts were among those selected for PotH:

- Alec Shamus Bowcock, Pacific University. Faculty Advisor: James Butler. Title: Low Threshold Optical Limiting in Solid-core Photonic Crystal Fibers.
- Emily DeLarme, Rensselaer Polytechnic Institute. Faculty Advisors: Jon Morse and Daniel Angerhausen. Title: Physical Properties of Exoplanets from Secondary Eclipse Observations.
- Alyssa Mae Fosnight, Wright State University. Faculty Advisor: Ivan Medvedev. Title: Diagnostic Chemical Analysis of Exhaled Human Breath using a Novel Terahertz Spectroscopic Approach
- Anna L. Hafele, Black Hills State University. Faculty Advisor: Andy Johnson. Title: Overcoming Learning Barriers to Radiation Literacy.
- Kristina G. Ward and Lyandysha V. Zholyudeva, Creighton University. Faculty Advisor: Michael Nichols. Title: Let there be light! Laser scanning microscopy reveals cellular metabolism.

Prior to arriving in Washington DC, participants and their faculty mentors were able to view a webinar on the event (coordinated by the CUR national office and Washington Partners). This webinar appeared to be informative and valuable to participants and will be continued in future PotH events.

As in past years, there were tours/field trips for students to a number of Washington sites on the day prior to the event (National Aquarium, Department of Commerce, NIH, Folger Shakespeare Library, National Archives, and the Smithsonian Institution Museum of Natural History). There was also the pre-event dinner and breakfast to prepare the students and advisors for meetings with their Representatives and Senators (or their staffs). At the breakfast, Kolo Rathburn, former PotH participant and Legislative Assistant to Senator Roger Wicker (MS), Liz Kingsley, Government Relations Specialist for the Educational Testing Service, and Dr. DaNa Carlis, Research Meteorologist for the National Weather Service discussed how they obtained their positions and fielded questions about Congress. Lunch on the day of the event was also provided along with having access to a room to debrief national office staff of their morning meetings. This component of the event was well received and we will attempt to continue incorporating this in future years.

This year, there was only an evening session that was again co-hosted by the American Chemical Society. At that session, in addition to the 60 posters presented by
students, the Council presented its Honorary CUR Fellows Award to Congressman Chaka Fattah (PA-2). The ACS presented their Public Service Awards at the ceremony to Congressmen Mark Udall (CO), Lamar Smith (TX), and John Holdren, Director of the White House Office of Science and Technology Policy.

This year’s event went exceptionally well and there were nearly 20 senators and legislative representatives that attended. The event was successfully coordinated by the CUR National Office whose extraordinary efforts should be duly noted. The review process was completed in a timely fashion because of the excellent work of reviewers who were able to process a large number of applications while providing reviews of high quality. Finally, I want to especially thank Dr. Michael Castellani for staying on as co-chair this year. He is finishing ten years of service on this committee. During his tenure, the number of applications to this event has more than quadrupled! Thank you Mike!

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**Consider Submitting An Article to the CUR Quarterly!**

The purpose of the CUR Quarterly is to provide useful and inspiring information about student-faculty collaborative research and scholarship from all types of institutions. We’d love to see physics and astronomy better represented in the Quarterly. I’m sure we’ve got folks with important information to share with the broader community!

Articles regarding the effects of the research experience on the development and subsequent endeavors of students, and how to initiate, support, or sustain undergraduate research programs are appropriate for this journal. All articles are peer-reviewed.

Please contact Hank Yochum (hyochum@sbc.edu), Physics and Astronomy Division Editor, with questions.

_Hank Yochum_
_Sweet Briar College_

**CUR P&A Election Results**

We would like to take this opportunity to welcome our new and returning members as Councilors for the Physics and Astronomy Division:

-New Councilors:
  - Maria Bautista, Professor and Chair, Department of Math and Science, Kapiolani Community College, Honolulu, HI
  - Liubov Kreminska, Assistant Professor, Department of Physics and Physical Sciences, University of Nebraska-Kearney, Kearney, NE
  - Mohammad Samiullah, Professor, Department of Physics, Truman State University, Kirksville, MI.

-Re-elected Councilors:
  - David McGee, Associate Professor, Department of Physics, The College of New Jersey, Ewing, NJ
  - Gubbi Sudhakaran, Professor and Chair, Department of Physics, University of Wisconsin-La Crosse, La Crosse, WI

Congratulations to everyone! We are looking forward to the opportunity to welcome the new councilors and start another productive year at the 2013 Annual...
Business Meeting, June 20-22, at Chapman University in Orange CA.

John Armstrong
Weber State University

Kudos To
Ryan Corbin, Central Washington University: Ryan won 3rd Place in the 2013 Business Plan Competition for the Central Washington University Society of Physics Students during CWU’s Symposium on Undergraduate Research and Creative Expression. (Mentors: Michael Jackson, Greg Lyman, Bruce Palmquist, and Sharon Rosell)

Rebeca Kinser and Valerie Gibbs, Northern Arizona University: Rebeca and Valerie gave a poster presentation on “A new crater database of craters 5-km-diameter and larger for the Moon: Western nearside” at the 44th Lunar and Planetary Science Conference in March in The Woodlands, TX. (Mentor: Nadine Barlow)

Margaret Landis, Northern Arizona University: Margaret gave a poster presentation on “Impact crater analysis of southcentral Arabia Terra, Mars, and implications for volatiles” at the 44th Lunar and Planetary Science Conference in March in The Woodlands, TX. Margaret also received NAU’s Gold Axe Award, which recognizes seniors who have made outstanding contributions to the university in the areas of academic performance, service, and activities. (Mentor: Nadine Barlow)

Kerry Oliver, Central Washington University: Kerry presented his research entitled “New Far-Infrared Emissions from Formic Acid and Several of Its Isotopic Forms” at the 21st Regional Conference on Undergraduate Research of the Murdock College Science Research Program. (Mentor: Michael Jackson)

Kerry Oliver, Brad DeShano, and Breanna Cain, Central Washington University: Kerry, Brad, and Breanna received the College of Sciences Best Oral Presentation Award for their talk on “New Far-Infrared Emissions from Optically Pumped Formic Acid and Several of its Isotopic Forms” at CWU’s Symposium on Undergraduate Research and Creative Expression. This award recognizes the top 10% of all presentations given at the symposium. (Mentor: Michael Jackson)

Alexis Payne, College of Charleston: Alexis presented a poster entitled “Dynamics of concentration fluctuations in nanocolloidal suspensions” at the March 2013 APS meeting in Baltimore, MD. She also was a co-author on the paper “Dynamic shadowgraph experiments and image processing techniques for investigating non-equilibrium fluctuations during free diffusion in nanocolloids” in Optics Communications, 290, 100-106. (Mentor: Ana Oprisan)

Adam Powell, Central Washington University: Adam was named the Undergraduate Scholar of the Year during CWU’s Symposium on Undergraduate Research and Creative Expression. (Mentors: Michael Braunstein and Michael Jackson)

Michael Jackson, Central Washington University: The American Association of Physics Teachers (AAPT) has named Michael Jackson the recipient of the 2013 David Halliday and Robert Resnick Award for Excellence in Undergraduate Physics Teaching. Mike also was named Undergraduate Faculty Mentor of the Year during CWU’s Symposium on Undergraduate Research and Creative Expression.
Sorinel Oprisan, College of Charleston:
Sorinel received the William V. Moore Distinguished Teacher-Scholar Award for the 2013 academic year. This award honors colleagues who exemplify the teacher-scholar model and whose exemplary scholarship and exemplary teaching have enriched the intellectual lives of students through the recipient’s career.

Opportunities
Lecturer Positions in Physics: Central Washington University invites applications for full-time and part-time lecturer positions in the physics department for the 2013-2014 academic year. This includes quarterly and annual (nine-month) appointments. We anticipate at least one of these positions will evolve into a tenure-track position in future years. Further information about the university is available at www.cwu.edu.

Required Qualifications: Master’s Degree (or ABD for PhD) in physics or a closely related field. Teaching experience in physics at the undergraduate level.

To apply for full-time and part-time lecturer positions, you must complete the on-line application (jobs.cwu.edu). Direct inquiries to: Andy Piacsek, piacsek@cwu.edu. Screening applications will begin July 1, 2013 and will continue as needed. Please contact Human Resources at AskHr@cwu.edu or 509-963-1202 if you require technical assistance with the on-line application process. CWU is an Affirmative Action, Equal Opportunity Title IX Institution.

Physics Instructor: The Department of Physics and Astronomy at Northern Arizona University invites applications for a non-tenure-track, one-year instructor position for the 2013-2014 academic year. The position will begin 19 August 2013 and may be renewable for a second year contingent on satisfactory performance and availability of funding. The instructor will teach lower division physics courses up to 12 credit hours per semester during the 2013-2014 academic year. The assignment will typically be four courses or some equivalent combination of lectures, recitations, and laboratory sessions. The instructor will also be expected to participate in department service. The salary range for a new instructor is $35,000 to $41,000 per academic year, depending on qualifications.

Minimum Qualifications: A Master’s degree in physics or a closely related field. Applicant must be able to begin work, with all degrees completed, on 19 August 2013.
Preferred Qualification: A strong academic record; experience teaching physics courses at the college level; evidence of high quality teaching and commitment to student success; strong communication skills; the experience and/or commitment necessary to work with a diverse population.

Applicants should submit a letter of application, a curriculum vitae (including a current email address), a description of your approach to pedagogy and study success, unofficial copies of your undergraduate and graduate transcripts, and contact information for three references who know your teaching to: Physics Instructor Screening Committee, Department of Physics and Astronomy, box 6010, Northern Arizona University, Flagstaff, AZ 86011-6010. The committee will begin reviewing files on 15 June 2013. Consideration of applications will continue until available position is filled or closed. Addition information can be found at hr.nau.edu/node/2796&job_req=600330.

Help Contribute to CURPA News
We are always looking to highlight the wonderful accomplishments and activities of
our CUR Physics and Astronomy Division members. Please help us recognize these achievements by sending items for CURPA News to Editor Nadine Barlow. We highlight achievements by CUR P&A members and their undergraduate students in our Kudos section. And we use the Opportunities section to advertise faculty searches and graduate programs in physics and astronomy. See information at the end of this newsletter regarding the deadline for the Summer 2013 issue of CURPA News.

**CURPA Communications**

In addition to our quarterly newsletter, the CUR Physics and Astronomy Division has a blog (cur-ph.blogspot.com/), a Facebook group, and a LinkedIn group. We welcome your input!

**Your CURPA Councilors**

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*through June 2013

**CURPA News Deadline**

CURPA News comes out approximately quarterly and we welcome your contributions! Please send your submissions, comments, achievements, opportunities, etc. to editor Nadine Barlow at Nadine.Barlow@nau.edu. Deadline for the Summer 2013 issue is **August 1, 2013**.