



CURPA NEWS



Newsletter of the Council on Undergraduate Research Physics and Astronomy Division

Spring 2017

View from the Chair

Welcome to the spring edition of the Physics and Astronomy Division's newsletter! I trust everyone's spring terms are now winding down and you're looking forward to a myriad of summer activities.

As this Newsletter is being written, very well-attended Undergraduate Research Week, NCUR, and Posters on the Hill events have just concluded. As always, CURPA faculty and students were well-represented at these events and you can read about some of them here. Did you participate in any of these, or other UGR-related events? If so, please share some of your own experiences in the next Newsletter. Also, at your own university's graduation ceremonies, consider calling out the CUR-related accomplishments of your own students and faculty.

This summer, Northern Arizona University in Flagstaff, Arizona, will be the hosting three CUR meetings between June 16 and July 1, 2017. The CUR Executive Board meeting will kick off the week Monday and Tuesday. The Undergraduate Research Program Directors Conference begins the evening of June 27 and continues to the morning of June 29. The CUR Annual Business Meeting starts early afternoon on June 29th and continues through Saturday morning, July 1 (all Councilors are expected to attend this one). Several special excursions of interest to CUR Physics & Astronomy Division members are planned, thanks to CURPA Councilor Nadine Barlow (thanks Nadine!). Details of the week's program haven't yet been finalized as this newsletter goes to press, so keep an eye on the cur.org website

for updates. Meanwhile, CURPA members, please send me any agenda items you would like us to discuss at the ABM during our Division's sessions. New suggestions for how we can better serve you and your efforts to foster UGR are very much welcome. Even more importantly, how can we *involve* you more in our Division's activities?

This year we made a special effort to reach out to all the physics departments in the U.S. and I'm happy to see that CURPA membership is up and also that we have some new Councilors this year. In the coming year, please help us by reaching out to your colleagues and reminding them that they are already CUR members if their universities are institutional members of CUR—they just need to activate their free membership. We also formalized the CURPA travel grant program begun by Mike Jackson a few years ago. Response to our call for proposals issued in April was very encouraging. Those of you who applied will hear from us soon, probably before you receive this Newsletter (congratulations!). We also created a Mentor Award this year; see the article by Mike Jackson in this Newsletter for the full story.

I'd like to mention a few recent activities involving the CUR Executive Board. CUR joined with a large number of other professional organizations in petitioning Congress for better support of science funding and strongly supported the April "March for Science." These efforts from across the scientific community seem to have had a positive impact on the federal commitment to science so far. As CUR's

membership approaches 10,000 the E-Board has begun discussing ways to evolve our governance structure. This discussion will be continued at the June ABM. Our organization's growth also prompted E-Board to move the National Office into a larger much-needed suite in the same building. Finally, in case you've not already noticed it, CUR has a new "voice"—yours! Have a look at the new CUR Community Member Forum at community.cur.org—better yet, join in or start a chat!

On behalf of the entire CURPA Division, thanks to everyone who participated in the CURPA councilor elections this year. Congratulations to our newest Councilors and to those who were re-elected (see the last page in this Newsletter for all Councilor contacts). A special heartfelt thanks to those of you who are rotating off the Council for your dedication to the cause of undergraduate research—we will sorely miss you. We will be looking for a few new Councilors again this fall, so please consider nominating yourself, or a colleague when the call comes out, OK? CURPA is only as active as our members make it.

Extra special thanks to PA Councilor Rick Thompson for editing our Newsletter again this past year. Keep Rick busy by sending him a brief report (with photos!) about your most interesting summer UGR-related activities for our fall Newsletter. His email is listed at the end of the Newsletter.

Have a happy, safe and productive summer, everyone!



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National Conference on Undergraduate Research (NCUR)

NCUR 2017 was hosted by the University of Memphis in Memphis, TN, on April 6 – 8, 2017. Over 4130 individuals registered for the two-and-a-half day event, making this one of the largest NCUR's ever. The well-attended plenary sessions included presentations by Fred Smith, CEO of FedEx; Santosh Kumar, Chair of Excellence in Computer Science, U of Memphis; and a joint closing plenary by Terri Freeman, President of the National Civil Rights Museum, and Daphene McFerren, Executive Director of the Benjamin Hooks Institute for Social Change. There were also over 80 presentations within the division, along with other interdisciplinary presentations made by physics and astronomy majors.

Over 100 graduate programs attended NCUR 2017. In informal interviews of those who were staffing the graduate school tables, all were delighted with the quality of the students they met and with the number of students who visited their tables. While there were a few "first-timers", most graduate school programs had been to NCUR in the past. All planned to return in 2018.

NCUR 2018 will be hosted by the University of Central Oklahoma in Edmund, OK, on April 5 – 7, 2018. As with past NCUR's, abstract submission will open in the Fall with an abstract deadline around early December. Plan now to send your undergraduates to NCUR 2018. Already booked as a plenary speaker is John Bennett Herrington (born September 14, 1958 in Chickasaw Nation), a retired United States Naval Aviator and former NASA astronaut. In 2002, Herrington became the first enrolled member of a Native American tribe to fly in space.

Congratulations to all of the student presenters and their advisors. If you are mentoring undergraduate students you might

want to encourage them to present their research at NCUR 2018.

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2017 Posters on the Hill

CUR's *Posters on the Hill* was held on Wednesday, April 26 in the Rayburn building, Washington DC. This year, 60 posters were selected from over 300 completed applications. The students selected to represent the Physics and Astronomy Division are:

- Robin Morillo, The College of Wooster, (Advisor: Dr. Niklas Manz), "A Hill on fire: Using Matches, 3D Printing, and Code as a Forest Fire Analog,"
- Joseph Mammo, University of South Dakota, (Advisor: Dr. Jing Liu), "Cross-platform Data Manipulation and Visualization System,"
- Benjamin Whitenack, Lewis and Clark College, (Advisor: Dr. Shannon O'Leary), "Using Flickering Laser Light and an Atomic Gas to Detect Unknown Magnetic Fields."

Dr. Sarah Caudill, participant at the 2006 Posters on the Hill from Stetson University, was selected as this year's recipient for the *Honorary CUR Fellows* award. Sarah completed her Ph.D. in gravitational wave physics at Louisiana State University in 2012 under the direction of Dr. Gaby Gonzalez. She is currently a postdoctoral research associate in the Department of Physics at the University of Wisconsin – Milwaukee and is an ongoing member of the LIGO collaboration.

Additionally, the following students from the Physics and Astronomy Division received an honorable mention:

- Lorena Mezini (Stony Brook University), Kristine Romich (Harold Washington College, City Colleges of Chicago), and Roman Gradford

(Normandale Community College), (Advisor: Dr. Suruj Seunarine, University of Wisconsin – River Falls), "Comparison of Models of South Pole Ice for the IceCube Neutrino Observatory."

Congratulations to the above students and their advisors. As one might expect, reviewers were impressed by the overall quality of the applications and the research being conducted by undergraduates. The *Posters on the Hill* event is held annually, typically during the month of April. If you are mentoring undergraduate students this summer or know someone who is, please keep this program in mind and encourage your undergraduate students to apply. More information about this program can be found at:

www.cur.org/conferences_and_events/student_events/posters_on_the_hill/

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Physics and Astronomy Division's 2017 Mentor Award

At several of our previous business meetings, Councilors discussed how to enhance the profile of the work division members are undertaking. While there are a number of awards that recognize student researchers, there are few that highlight the work mentors are performing. Consequently, Councilors have established an annual award to honor Physics and Astronomy Mentors for their efforts in supervising undergraduate student researchers.

This year, the Council has decided to recognize Dr. Shannon O'Leary in its inaugural award. Dr. O'Leary joined the physics department at Lewis & Clark in the fall of 2011 as an assistant professor of physics. She mentored undergraduate researchers as they studied the interaction between laser light and a specially prepared

gas of atoms, sensitive to small variations in the surrounding magnetic field. To support these efforts, she received funding from the National Science Foundation and one of her current students, Mr. Benjamin Whitenack, was selected to present their work at the 2017 Posters on the Hill program.

Regretfully, this past December both she and her husband (also a physicist) were tragically killed in an automobile accident. The Council believed Dr. O'Leary exemplified the type of activities undertaken by awardees and was subsequently selected by the Council as its inaugural recipient.

Details for how to submit nominations for the 2018 award will be outlined in our fall newsletter.

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Goldwater Foundation Nomination Cycle for 2018 Opens on the First Tuesday After Labor Day

There is a fairly strong correlation between the number of students nominated for Goldwater scholarships and the number of Goldwater scholarships and Honorable Mentions that are received by students in each discipline. The two disciplines nominating the largest numbers of students are chemistry and biology. It is not surprising then that these disciplines have received the largest number of Goldwater awards.

When considering the Goldwater scholarship, the central question a student must answer is whether or not he/she wants to pursue a research career. If the answer is "yes", then the student should seriously consider applying for a Goldwater. If the answer is "no", then the Goldwater is probably not the right program for that student.

Important to the selection of Goldwater Scholars is the degree to which

undergraduates are involved in research. Given the emphasis the physics community has placed on involving undergraduates in research, many physics and astronomy students should have the credentials they need to be nominated for a Goldwater Scholarship.

Having students named Goldwater Scholars or receiving an Honorable Mention will help you build the reputation of your program. That, in turn, can help you attract more students to your program. Having students go through the application process, helps your student develop his/her career plans and, as we've been told by numerous Goldwater Campus Representatives, subsequently helps students prepare successful applications for graduate school scholarships and fellowships. The latter is true regardless of whether or not a student is named a Goldwater Scholar or receives an Honorable Mention.

Many of you will be mentoring physics and astronomy majors this summer. If the student is a sophomore or a junior, then your mentee is eligible for the Goldwater Scholarship. As part of your student's summers activities, have your student review the Goldwater application on the Goldwater web site (<https://goldwater.scholarsapply.org/>). If your student has questions, I would be happy to answer them.

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eAlliances: Uniting Isolated Women Physicists and Astronomers

Everyone needs mentors, but how do you find other women physicists who understand your experience-- as the only Hispanic in the department, the only PER researcher, the only full-time physicist at your TYC, the only one who brings a newborn in a sling to department meetings? Join eAlliances, a National Science

Foundation-supported faculty development project for women physics and astronomy faculty, and become part of a peer-mentoring alliance with other women who share many of your same experiences.

Why me?

- Connect with other women physicists and astronomers
- Get and give advice and affirmation
- Gather a variety of insights to help you address professional issues
- Address work-life balance issues
- Receive encouragement and support in achieving your goals

This is professional development for your career stage: whether you are teaching your first or hundredth section of intro physics; mentoring your first or hundredth research associate; or leading your first or hundredth committee meeting. Someone else has a similar experience and can share insights, frustrations, and successes. For a short introduction to the eAlliance project, watch <http://bit.ly/2oXeIGS>. Sponsored by the American Association of Physics Teachers (aapt.org) and supported by NSF ADVANCE-PLAN D (HRD-1500529). To join: Register at eAlliances.aapt.org

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Physics Presence at March for Science

The March for Science (<https://www.marchforscience.com>) was held on Earth Day, April 22, 2017. The main march was in Washington, D.C. and more than 600 satellite marches were held across the world including all seven continents. Over 300 organizations along with the American Physical Society, the American Association of Physics Teachers, and the American Astronomical Society were official partners with the MFS. MFS also partnered with Earth Day Network exclusively for the Washington, D.C. event

and co-organize a rally and teach-in on the national mall. The MFS, described as nonpartisan, was a way to celebrate science at all levels, demonstrate scientists' passion for science, and call for support and safeguarding of the scientific community. The March's core principles include: evidence-based policy and regulations in the public interest, cutting-edge science education, and diversity and inclusion in STEM. (The complete list of core principles is available at <https://www.marchforscience.com/mission-and-vision/>).

The day of the MFS in Washington, D.C. began with a rally near the Washington Monument. The rally included various scientific luminaries such as Bill Nye the "Science Guy," Thomas Dolby (singer/songwriter of "She blinded me with science" and member of the Johns Hopkins University faculty), and Rush Holt (CEO of AAAS, former U.S. Representative, and physicist). The last set of speakers highlighted climate change and its effects on the planet. The actual march started around 2 p.m. and went from the Washington Monument to the Capital building. The signs at the marches provided ample entertainment! Despite the cool, rainy weather, the MFS in Washington, D.C. attracted over 40,000 scientists. Following the March, the organizers of the MFS asked scientists to participate in a "Week of Action" and outlined daily actions to be taken (see <https://www.marchforscience.com/blog/2017/4/23/announcing-the-week-of-action>).

Was the MFS successful in its goal? The March gave visibility to science and enabled many scientists to speak out on behalf of using evidence-based policy, the importance of diversity and inclusion in the practice of science, and science serving the greater good. The lasting impact will be whether a new generation of scientists will

engage the public and participate in advocating for science.

If you are interested in becoming more engaged in communicating science, improving science outreach, or advocating for science and strengthening the role of science in policymaking, a number of resources are available including the following:

- CUR has an advocacy toolkit for the 115th Congress at http://www.cur.org/assets/1/7/CUR_Toolkit_115th_Congress.pdf;
- AAAS has an advocacy toolkit on its Force for Science website at <https://www.forceforscience.org/toolkit/>;
- AAS has advocacy resources at <https://aas.org/policy/advocacy-resources>;
- AAPT has a number of public policy statements and resources at <http://aapt.org/Resources/policy/>.

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CURPA councilor Mike Jackson and students from Millersville University of Pennsylvania attended the *March for Science* event held in Washington DC on April 22, 2017.



Photo courtesy of AAPT

Your CURPA Councilors

Rae Anderson, University of San Diego *

Nadine Barlow, Northern Arizona University. CURPA Secretary and Chair CUR Fellows Committee.

Maria Bautista, Kapi`olani Community College. Diversity and Inclusion Task Force.

Matthew Beaky, Juniata College. CUR Finance Committee. **

Mark Biermann, Valparaiso University. Constitution and ByLaws Committee. **

Joseph Carson, College of Charleston.

Beth Cunningham, AAPT. CURPA Mentoring program. **

Chris Fuse, Rollins College. *

Carol Hood, Cal State San Bernardino. *

Michael Jackson, Millersville University. CUR Posters on the Hill Committee. **

Seth King, UW La Crosse *

George Marcus, SUNY Geneseo, Assessment.

John Mateja, Murray State University. CUR/Barry Goldwater Scholar Faculty Mentor Award Committee and NCUR Oversight Committee.

Duncan McBride, formerly at the National Science Foundation. CUR Treasurer, CUR Finance Committee, and CUR Investments Committee.

Sorinel Oprisan, College of Charleston. CUR Quarterly Editors Board.

Terry Oswalt, Embry-Riddle Aeronautical University Daytona Beach. CURPA Chair, Advocacy Advisory Committee, CUR Executive Board. **

Phillip Reed, Kutztown University, Internationalization Task Force.

Toni Sauncy, Texas Lutheran University, Program Review, Student Programs. **

Allyn Smith, Austin Peay State University. CUR Posters on the Hill Review Committee.

Kristin Rabosky, Weber State University. *

Francis Tuluri, Jackson State University, Innovation and Collaboration Task Force.

Brian Utter, Bucknell University, Assessment. **

Richard Thompson, The College of Saint Rose (Cabrini University as of July 1). Integrating Research into the Curriculum Task Force, CURPA Newsletter Editor.

Gabriel Williams, College of Charleston.

* Term begins at June 2017 Business Meeting

** Re-elected to new term

Term ends at June 2017 Business Meeting

CURPA News Deadline

CURPA News comes out three times per year and we welcome your contributions! Please send your submissions, comments, achievements, opportunities, etc. to Rick Thompson (Richard.Thompson@cabrini.edu). Deadline for the Fall 2017 issue is ***September 15, 2017***