

# CURPA NEWS



*Newsletter of the Council on Undergraduate Research Physics and Astronomy Division  
Summer/Fall 2013*

## **Message from the Chair**

As the new chair of the CUR Physics and Astronomy (P&A) Division, I would like to welcome all of our members and councilors to another exciting year. I also would like to thank Dave McGee for his tireless efforts and the great work he did in serving as chair of the P&A Division for the past two years.

As an organization, there are a number of events we can look forward to this year, including the National Conference on Undergraduate Research (NCUR) at the University of Kentucky and Posters on the Hill (POH). Both of these events will be held in April 2014 and are great opportunities for your students. For faculty and administrators, there is the CUR Conference that will be held in Washington DC in June 2014. Along with attending the national meeting, the conference location will give participants the opportunity to meet with legislative representatives and their staff as well as program officers at numerous federal funding agencies.

As we have been putting this newsletter together, I reflected on how CUR has influenced my career, particularly in how I interact with and engage undergraduates in my research. My growth as a researcher and mentor to undergraduates can be traced to a number of opportunities CUR has either provided or helped facilitate. These include:

- Access to professional development opportunities for both myself and, more importantly, members of my administration. These include well recognized institutes and publications such as *The CUR Quarterly* and CUR's "How To" handbooks.
- Interactions with colleagues discussing best practices in mentoring and

promoting Undergraduate Research. A recent compilation of best practices, *Characteristics of Excellence in Undergraduate Research (COEUR)*, can be found at:

[www.cur.org/publications/publication\\_listings/COEUR/](http://www.cur.org/publications/publication_listings/COEUR/).

- Access to outstanding and experienced program review teams.
- Access to formal and informal mentoring within the P&A division.
- Access to conferences such as the CUR Conference, POH, and now NCUR.
- P&A travel awards to NCUR.
- Recognition of undergraduate research activities through the CUR Fellows awards.
- Advocacy.

CUR has certainly evolved beyond its origins as a collection of chemistry departments at private, liberal arts colleges. However, we have remained true to our core message: to be the leading advocate and voice for undergraduate research. As a member, please take advantage of all CUR has to offer. Please also consider informing and encouraging your colleagues to join, with particular emphasis on your junior faculty. The cost to join CUR is modest while the cost is zero if your institution is an enhanced member:

[www.cur.org/membership/list\\_of\\_institutional\\_members/](http://www.cur.org/membership/list_of_institutional_members/)

As fall approaches, I wish you the best of luck in your upcoming activities. Please feel free to contact me if you have questions or suggestions.

*Michael Jackson*  
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Central Washington University  
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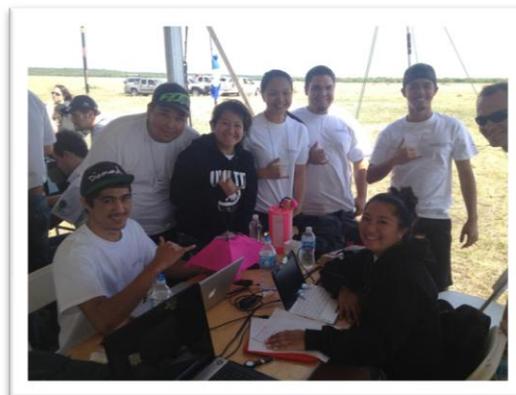
Your CUR P&A Councilors participated in the 2013 CUR Business Meeting June 27-29 at Chapman College in Orange, CA. From left to right: Terry Oswalt, Michael Jackson, Gubbi Sudhakaran, Hank Yokum, John Armstrong, Horace Crogman, Maria Bautista, Richard Thompson, Nadine Barlow, Duncan McBride, Mohammad Samiullah, David McGee, Allyn Smith, Sorinel Oprisan, and John Mateja.

### ***Kapi'olani Community College STEM Program CanSat Team Takes First Place***

The annual CanSat competition ([www.cansatcompetition.com](http://www.cansatcompetition.com)) offers participating undergraduate and graduate student teams the opportunity to design, build, and launch satellite-like systems in a space-related mission. In 2013, Kapi'olani Community College (KapCC) Science, Technology, Engineering, and Mathematics (STEM) CanSat team was comprised of seven KapCC physics students. The team included undergraduate students McClyde Gaborno, Kelsey Kawaguchi, Taylor Viti, Rae-Zan Belen, Logan Tamayo, Diamond Tachera, and Joshua Tamayo, along with faculty mentor Dr. Hervé Collin. Six out of the seven students were recruited through either the college's calculus-based physics course or directly through the STEM Program.

For eight months, the KapCC STEM Program student CanSat team designed a payload with specific sensors to measure various readings, including positioning, atmospheric pressure, temperature, and acceleration. In addition, a telemetry system was required to transmit all of the

information collected by the sensors continuously to a Ground Control Station (GCS) and display the information in real time. As part of the competition, their satellite had to be deployed from its envelope at exactly 400 meters above the ground before descending at a specific rate. From apogee to 400 meters, an aero-braking system had to be implemented for the active control descent mechanism. As if that wasn't difficult enough, the last aspect of the CanSat competition involved creating a compartment to hold an egg that had to descend safely and survive impact upon touching down. If any portion of the launch or descent rates were not within the required limits as stated by the competition committee, points would be deducted from the team.



(Clockwise from bottom left) Taylor Viti, Logan Tamayo, Rae-Zan Belen, Kelsey Kawaguchi, Joshua Tamayo, McClyde Gaborno, Faculty Mentor Dr. Hervé Collin, and the team lead Diamond Tachera of the 2013 KapCC STEM Program CanSat Team at their ground control station before the launch of their CanSat.

Throughout the life of the entire project, the students learned how to work in a team setting, participate in undergraduate research, and experience a complete engineering process. The students broke down the entire project into smaller specific subsystems in order to complete the CanSat in time. The subsystem disciplines included programming, electronics, telemetry, physical layout, descent, and deployment.

KapCC was only one of two community colleges participating in a field of over twenty universities from all over the world. Despite these odds, the KapCC STEM Program team, dubbed “Team Mod 6,” came out on top with an impressive score of 93.34 out of 100. We would like to congratulate the winning team for all their hard work and dedication. We also would like to thank all of the contributing faculty and staff members at KapCC for their assistance and guidance along the way.

*Dr. Hervé Collin, CanSat Faculty Mentor  
Keoki Noji, STEM Program  
Marketing Coordinator  
Kapi'olani Community College*

### ***Councilor Nomination Deadline***

The nomination deadline for CUR Councilors to serve on the Physics and Astronomy Division is November 8, 2013. All current CUR members (including new members at the time of nomination) are eligible and encouraged to apply. Remember, membership is free if your institution is an enhanced member of CUR—all a person has to do is fill out the membership application. Please contact any colleagues you feel would make good candidates for a CUR Council position. You can learn more about the CUR P&A Division at:

[www.cur.org/governance/divisions/physics\\_astronomy/](http://www.cur.org/governance/divisions/physics_astronomy/)

Please contact John Armstrong for more information or if you are interested in being nominated.

*John Armstrong  
Weber State University  
[jcarmstrong@weber.edu](mailto:jcarmstrong@weber.edu)*



### ***2014 Posters on the Hill***

Do you have an engaging, personable research student who can explain his/her research to a non-technical, educated audience? If so, your student might be a great advocate for undergraduate research in Washington, DC, and should consider applying to the 2014 Posters on the Hill. This program is aimed at connecting undergraduates with their congressional representatives. Nothing more effectively demonstrates the value of undergraduate research than the words and stories of the student participants themselves.

CUR started accepting applications for the 2014 Posters on the Hill event on September 2, 2013. The submission deadline is the end of the day on November 4, 2013. Participants will be notified of their selection in late January/early February 2014. Interested in learning more? Please visit the CUR website at:

[www.cur.org/conferences\\_and\\_events/student\\_events/posters\\_on\\_the\\_hill/](http://www.cur.org/conferences_and_events/student_events/posters_on_the_hill/)

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### ***NCUR 2014***

The 2014 National Conference on Undergraduate Research (NCUR) will be held at the University of Kentucky in Lexington April 3-5, 2014. This is a major venue for undergraduate students to present their research and consists of a variety of invited talks as well as oral and poster presentations, visual arts displays, and performances. Abstracts will be accepted

Sept. 30 through Dec. 6, 2013. For more information about NCUR, including a draft schedule of the conference and links to the application, please go to:  
[www.cur.org/ncur\\_2014/](http://www.cur.org/ncur_2014/).



### **2014 NCUR Travel Award:**

The CUR Physics and Astronomy division is pleased to offer travel awards for students attending the National Conference on Undergraduate Research (NCUR) at the University of Kentucky, April 3-5, 2014. Applying for the travel award is easy!

When your abstract is accepted by NCUR, send a single email to Michael Jackson ([jacksonm@cwu.edu](mailto:jacksonm@cwu.edu)) with the following:

1. Your name and contact information
2. Your student's name and contact information
3. Your NCUR acceptance letter

Awards will be made on a first-come first-serve basis. The first 7 applicants will have their student registration fee paid by the CUR Physics and Astronomy Division. Notification of abstract acceptance is scheduled to be made by January 14, 2014.

Please note:

- *One award will be made per department*
- *Awards are limited to physics and astronomy submissions. Separate physics and astronomy departments from the same campus will be considered as distinct, and are each eligible.*

- *Priority is given to students of CUR P&A members.*
- *CUR P&A councilors may apply, but will receive an award only if fewer than 7 applications are received from the general P&A membership.*

*Michael Jackson*  
 Central Washington University  
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### **CUR Conference 2014**

CUR is hosting its 16th National Conference, "Creating the Citizens of Tomorrow: Undergraduate Research for All," in Washington, DC—a fitting location for its theme of democratizing undergraduate research! In situating the conference in our nation's capital, CUR will highlight cross-disciplinary connections and collaborations among higher education, government agencies, and non-profit organizations.

The overall goals of the conference are to encourage broad participation in undergraduate research and to make visible its benefits to students, faculty, colleges and universities, and communities. Students who participate in undergraduate research are better prepared in their fields of study as well as more informed as citizens as they learn skills of problem-solving, critical thinking, and communication. But as faculty and institutions still face barriers to giving every student a significant research experience, this conference focuses on

creative ideas and practical solutions for meeting those challenges. Conference participants will share strategies and models that have helped strengthen undergraduate research in their institutions—in plenary talks, an exciting variety of conference sessions, and through the informal networking that is a hallmark of CUR conferences.

The conference will be held June 28 through July 1, 2014 at the Renaissance Washington Hotel in Washington, DC. Presentation and poster submissions will open in September, 2013 and the deadlines are Nov. 15, 2013 for presentations and Feb. 21, 2014 for poster. Registration will open soon. For more information, please visit [www.cur.org/conferences and events/cur conference 2014/](http://www.cur.org/conferences_and_events/cur_conference_2014/).

### ***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 Sorinel Oprisan (OprisanS@cofc.edu), Physics and Astronomy Division Editor, with questions.

### ***Kudos To***

**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 gave his presentation, "Teaching Physics and its Role in the Survival (and Growth) of a Physics Program", at the AAPT 2013 Summer meeting in Portland, Oregon. His talk turned out to be an excellent testimony to the importance of the SPIN-UP project. You can view Mike's presentation on YouTube at:

[www.youtube.com/playlist?list=PLB7VZGN-jCHswUQeYB9Na98lkKM3dfOaM](http://www.youtube.com/playlist?list=PLB7VZGN-jCHswUQeYB9Na98lkKM3dfOaM)



Mike Jackson (left) receives the David Halliday and Robert Resnick Award for Excellence in Undergraduate Physics Teaching at the 2013 AAPT Meeting in Portland.

### ***Opportunities***

**Anacapa Society Meeting:** The Anacapa Society ([anacapasociety.org](http://anacapasociety.org)), which promotes research in all areas of theoretical and computational physics at primarily undergraduate institutions, is organizing its 3rd Annual meeting to be held at Georgia Regents University, Augusta, GA, Friday, December 13, 2013 through Sunday, December 15, 2013. The abstract submission deadline is September 15. Abstracts can be submitted at [apps.aug.edu/anacapa/](http://apps.aug.edu/anacapa/). To be added to the email distribution list for this meeting, please contact Trinanjan Datta ([tdatta@gru.edu](mailto:tdatta@gru.edu)).

**PhD Fellowships in Engineering Physics, Embry Riddle Aeronautical University:** PhD fellowships are available in the Engineering Physics program at the

Department of Physical Sciences, Embry Riddle Aeronautical University located in Daytona Beach, Florida. Requirements include a Master's degree in physics, engineering, applied mathematics, or related field. The fellowships include full tuition and \$20,000 stipend per academic year. Starting date can be Spring 2014. For details and application procedures, please visit: [www.erau.edu/admissions/graduate.html](http://www.erau.edu/admissions/graduate.html)

***Tenure-Track Faculty Position in Experimental Physics, Northern Arizona University:*** The Department of Physics and Astronomy at Northern Arizona University ([www.physics.nau.edu](http://www.physics.nau.edu)) is seeking an experimental physicist for a tenure-track position at the Assistant Professor level beginning in August, 2014. The minimum qualification is an earned doctorate in physics or a related field. Preferred qualifications include demonstrated interest or ability to develop a research program that involves undergraduates and graduate students; a publication record and/or extramural funding in experimental physics; evidence of high quality teaching and commitment to student success; expertise in condensed matter physics/materials science, chemical physics, biophysics, optics, or other field of experimental physics research that can be carried out at NAU; expressed interest in interdisciplinary research with other departments; and the ability to work with students, colleagues, and community members from diverse cultures. The search will remain open until the position is filled or closed; however, the screening committee will begin reviewing applications on October 14, 2013. Please see [www.nau.edu/hr](http://www.nau.edu/hr) for full position announcement [position number 600352]. NAU is an AA/EO/MWDV Employer.

### ***Your CURPA Councilors***

John Armstrong, Weber State University. CUR Nominations Committee.  
 Nadine Barlow, Northern Arizona University. CURPA News Editor and CUR Fellows Committee.  
 Maria Bautista, Kapi`olani Community College.  
 Mark Biermann, Wartburg College.  
 Horace Crogman, University of California Merced. CUR Finance Committee.  
 Beth Cunningham, AAPT.  
 Chris Hughes, James Madison University.  
 Michael Jackson, Central Washington University. CURPA Chair and CUR Posters on the Hill Review Committee.  
 Liubov Kreminska, University of Nebraska at Kearney.  
 John Mateja, Murray State University. NCUR Oversight Committee and CUR Executive Board.  
 Duncan McBride, National Science Foundation. CUR Treasurer, CUR Finance Committee and CUR Investments Committee.  
 David McGee, The College of New Jersey.  
 Sorinel Oprisan, College of Charleston. CUR Quarterly Editors Board.  
 Mohammad Samiullah, Truman State University.  
 Allyn Smith, Austin Peay State University. CUR Posters on the Hill Review Committee.  
 Gubbi Sudhakaran, University of Wisconsin La Crosse.

### ***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 editor Nadine Barlow at [Nadine.Barlow@nau.edu](mailto:Nadine.Barlow@nau.edu). Deadline for the Winter 2014 issue is ***December 31, 2013***.