



View from the Chair

Greetings! By now I expect most of us have welcomed our incoming students and settled into the new academic year.

A lot has happened since the spring Newsletter. First, did you notice our newsletter's new name? Our Division has a full plate of activities in the coming year and I hope you will participate in some of them. A few of our recent and planned activities are outlined below.

Our Division set a number of priorities at the June 2018 CUR Annual Business Meeting in Arlington, Virginia. We filled a full slate of CUR committee volunteers, whose names and committees are summarized elsewhere in this newsletter. Please consider contacting the chair of whichever committee most interests you. You needn't be a Councilor to help! It's a great way connect with CUR and to explore whether you might be interested in running for a Councilor position sometime.

At the ABM, we discussed ways to increase our division's membership. We are one of the smaller CUR divisions, with about 400 members. The AAPT, AAS, and APS have thousands of members, many of whom mentor students in research. Why aren't all of these also members of CUR? One of our action items this year will be to reach out to members of those organizations through direct contacts, newsletters, and meetings.

Again, this year we also will reach out to physics departments. "What's in it for me?" is a common sentiment expressed by prospective CUR members. A lot, it turns out! In response, CURPA Councilors have

About CUR's Physics & Astronomy Division

The P&A Division of the Council on Undergraduate Research provides networking opportunities, activities, and resources to assist Physics and Astronomy administrators, faculty members, students, practitioners, and others in advancing undergraduate research.

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been providing short statements about why they joined CUR. You'll find a sampling of these testimonials in this newsletter. We would love to hear your own reasons for joining CUR in this newsletter (email Rick at email address above).

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At each ABM, we recognize Councilors whose term is expiring. This year, we especially honored two of our most active and long-standing division members, John Mateja and Nadine Barlow. John has served CUR and our division for decades. Though he is retiring from CURPA, he will continue to contribute to CUR, for example, in his role as president of the Goldwater Foundation

Nadine Barlow has been CURPA secretary for years. She's stepping down from CURPA to assume new administrative duties at her home institution. We are dearly going to miss both of them!



Retiring Councilors John Mateja (left) and Nadine Barlow (right) were recognized for their years of outstanding service to CURPA at the June ABM.

Also, at the June ABM we elected two new officers. Congratulations to Toni Sauncy, CURPA chair-elect, and to Brian Utter, CURPA secretary-elect. They will assume their new duties at the 2019 CUR summer meeting.

This issue provides just a glimpse of everything that is going on in our division. First up, Mike Jackson invites you to participate in the 2019 NCUR meeting. This is an excellent venue for your students to

interact with several thousand other students working on a wide variety of research projects spanning all disciplines. Mike is also one of the organizers for the annual Posters on the Hill competition. We need your help! Contact him to volunteer as a PoH reviewer. Consider entering one of your best student researchers in this prestigious national competition.

Next, John Mateja invites you to nominate students and faculty for the 2019 Goldwater Foundation Undergraduate Scholarships and Faculty Mentor awards. See his article about the 2018 mentor awardee, Dr. David Peak, in this newsletter.

Congratulations to our most recent CURPA Travel Award recipients: Abigail Flom, a planetary sciences major at Florida Tech; Liam Lambert, a physics major at Roanoke College; Kelsey Rook, a computer science major at Andrews University; and Amber Williams, a physics major at Miami University of Ohio. You'll find summaries of their research below.

Again, this year we spent nearly our entire division budget on travel award requests. There is clearly a strong need for this kind of support. We need your help! Please consider donating to this worthy cause via the link at the top right side of the CUR home page (or, just click [here](#)).

Don't forget that the PA Division has a Facebook page! Post your CUR comments, pictures, videos, and activities [here](#)! Better yet, send a report on your CUR-related activities to Newsletter Editor Rick Thompson at: rt533@cabrini.edu.

Best wishes for the new academic year!

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Summary of the 2018 CUR Physics and Astronomy Division Meetings



CURPA participants at this year's CUR Annual Business Meeting

The CUR Physics and Astronomy Division Councilors met three times during the CUR Annual Business Meeting that was held June 28–30, 2018, in Washington, DC, just prior to the CUR Biennial Conference. Some of the discussions centered on general CUR business, such as the change in the governance structure for the organization and input on the development of a CUR Vision Statement. But much of the time was spent discussing division business. Among the topics covered were the following:

- We discussed a number of ideas for increasing the visibility of CUR and specifically the CUR Physics and Astronomy Division. The physics and astronomy disciplines are doing a great job with mentoring undergraduate students in research, but few of the people doing the mentoring are familiar with CUR. We discussed ways to raise our profile at professional conferences, such as sponsoring a session on undergraduate research, providing a Division award for the best undergraduate student presentation at a conference, and passing out CUR stickers and brochures.

- The division currently offers student travel awards and a mentor award each year. We discussed the need to better define the parameters for each of these awards. We also discussed the implementation of the best student presentation award at a professional conference and what type of recognition could be given to the winning student's mentor. A subcommittee of Rae Anderson, Toni Sauncy, and Kristen Rabosky was formed to revise the criteria for the student travel award and define the judging standards for the best student presentation award. Terry Oswalt, Carol Hood, and Beth Cunningham will work on revising the criteria for the mentor award and define the form of the recognition for the best student presenter's mentor.
- The Councilors also discussed ways to better provide information on the benefits of CUR membership in order to increase division membership. Among the benefits identified were CUR's mentoring program and program review service, along with camaraderie and sharing of information about best practices. Terry Oswalt is collecting testimonials from the Councilors (and anyone else who wants to participate) about why they joined CUR. These vignettes will appear on a running banner at the top of the division's new webpage. We discussed putting videos of undergraduate student researchers discussing what they find valuable about research opportunities on our webpage. We also will enhance our social media presence.

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- Physics and astronomy are among the worst scientific disciplines in terms of diversity. We discussed several existing initiatives designed to improve the recruitment and retention of diverse students in physics and astronomy. A subcommittee of Maria Bautista, Lakshmi Krishna, Hasitha Mahabaduge, and Rae Anderson will identify ways that the Physics and Astronomy Division can help in this area.

The final division meeting ended with the election of a new secretary and vice chair/chair-elect. Brian Utter will be the new division secretary, and Toni Sauncy is the vice chair/chair-elect.

*Nadine Barlow
Past CURPA Secretary*

National Conference on Undergraduate Research (NCUR) 2019

The 2019 National Conference on Undergraduate Research (NCUR) will be held at the Kennesaw State University, from April 11-13, 2019. This is a major venue for undergraduate students to present their research and consists of a variety of plenary speakers as well as oral and poster presentations, visual arts displays, and performances. Abstracts will be accepted from October 8 through December 4, 2018. For more information about NCUR, including a draft schedule of the conference and links to the application, visit the [NCUR webpage](#).

*Michael Jackson
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Breaking a long-standing CURPA ABM tradition of dining together on Indian cuisine, Councilors enjoyed a dinner at a local Uyghur restaurant.

2019 Posters on the Hill

Do you have an engaging, personable research student who can explain his/her research to a nontechnical, educated audience? If so, your student might be a great advocate for undergraduate research in Washington, DC, and should consider applying to the 2019 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.

Last year's recipients were:

- José Antonio Flores Velazquez, California State Polytechnic University, Pomona, (Advisor: Dr. Claude-André Faucher-Giguère), "Star Formation Rate Indicators in the FIRE Galaxy Formation Simulations."

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- Winonah Ellen Rae Ojanen, The College of St. Scholastica, (Advisor: Mr. Troy Abfalter), “Post-Starburst Galaxy Evolution Analysis: E+A Galaxies.”
- Adam J. Miller, Clemson University, (Advisor: Dr. Chad E Sosolik), “Vacuum Applications of 3D Printed Materials and Devices for Ion Beam Physics.”

CUR will accept applications for the 2019 Posters on the Hill event until Friday, November 9, 2018. Selected participants will be notified in late January/early February 2019. Interested in learning more? Please visit the [CUR website](#).

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Goldwater Undergraduate Scholarships

Undergraduates who intend to pursue a research career in the natural sciences, mathematics and engineering should be considered for nomination for a Goldwater Scholarship, an award that is considered to be among the most prestigious an undergraduate may receive in a STEM field. Sophomores who are nominated and selected for the award receive up to \$7,500 in each of their junior and senior years. Juniors who are nominated and selected for the scholarship receive up to \$7,500 in their senior year. A full set of 2019 competition guidelines can be found on the [Goldwater Scholarship Foundation website](#). Involvement in research as an undergraduate is highly desirable in the Goldwater competition.

The nomination period is now open and closes on the last Friday in January 2019 at 5 p.m. (CST). Questions concerning the scholarship or nomination process should be directed to John Mateja, President, Goldwater Foundation at

goldwaterpres@goldwaterscholarship.gov or to Lucy Decher, Executive Administrator, at ldecher@goldwaterscholarship.gov.

I encourage all CURPA members to consider making a Goldwater scholarship application part of your students’ overall experience. When completing a Goldwater application, your students will have to think deeply about their research experiences, plan the next step in their educations, and develop some idea of where they want their careers to take them.

John Mateja, PhD
President

Goldwater Scholarship Foundation
goldwaterpres@goldwaterscholarship.gov

CUR-Goldwater Scholars Faculty Mentor Award

The Goldwater Foundation and CUR are pleased to announce the 2019 CUR-Goldwater Scholars Faculty Mentor Award. Faculty members in STEM disciplines who have five or more years of teaching and research experience past the terminal degree and have mentored three or more Goldwater Scholars may be nominated by their president or provost for the award. In addition to the nomination letter, the initial nomination packet includes a three-page nominee CV and a list of all Goldwater Scholars mentored by the nominee that includes each student’s name; year of the Goldwater scholarship; and an indication of whether the nominee was the (1) sole research mentor, (2) joint mentor, or (3) supported the student in preparing his/her Goldwater application only. The nomination deadline is November 5, 2018. Nominations should be mailed or emailed to:

CUR-Goldwater Scholars Faculty Mentor Award
 Attn: Dr. Elizabeth L. Ambos
 Council on Undergraduate Research
 734 15th St. NW, Suite 850
 Washington, DC 20005
 E-mail: eambos@cur.org (with a copy to submit@cur.org)

For complete information regarding the CUR–Goldwater Scholar Faculty Mentor Award and the application process, visit the [CUR website](#).

*John Mateja, PhD
President*

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David Peak, Cofounder of CUR’s Physics and Astronomy Division, Selected as 2018 CUR-Goldwater Scholars Faculty Mentor Awardee

(This article first appeared as the CUR and Goldwater award announcement.)

[David Peak](#), professor of physics at Utah State University, has been selected as the 2018 CUR-Goldwater Scholars Faculty Mentor Awardee. The award, which consists of a plaque and \$5000 for the awardee’s research program and/or undergraduate researchers, was presented at the Biennial Conference of the Council on Undergraduate Research, which was held at the Hyatt Regency Crystal City in Arlington, Virginia, on July 1–3.



Dr. David Peak, USU professor of physics
© Donna Barry/Utah State University

Selected from 10 finalists, Peak was recognized for his achievements as a research leader, as well as a productive scholar, teacher, mentor, and adviser to 33

undergraduates who have received 36 Goldwater scholarships and honorable mentions. A cofounder of the CUR Physics and Astronomy Division, he also was an early leader of the National Conference on Undergraduate Research and established an endowment at Utah State University to support undergraduate researchers and honor outstanding faculty mentors. Peak’s honors include the 2009 Professor of the Year award from the Carnegie Foundation for the Advancement of Teaching and the Council for the Advancement and Support of Education.

“The foundation is pleased to partner with CUR to celebrate faculty mentors who have helped their students achieve one of the most prized awards an undergraduate majoring in science, engineering, and mathematics can achieve—a Goldwater scholarship or honorable mention,” said John Mateja, president of the Goldwater Foundation. “David Peak is an exceptional undergraduate research mentor, his educational leadership at the national level is longstanding, and he sets a high standard to which all of us should aspire.”

Said CUR Executive Officer Elizabeth L. Ambos, “As an outstanding physicist, teacher-scholar, and highly effective mentor, David Peak has nurtured the careers of hundreds of students through activities such as his scholarship 'boot camp.' His wider contributions to undergraduate research programs at Utah State University, as well as the Council on Undergraduate Research, mark him as a foremost innovator within the undergraduate research movement.”

Said USU President Noelle Cockett, “Utah State University is thrilled David Peak is receiving this well-deserved national honor. Professor Peak has tirelessly mentored

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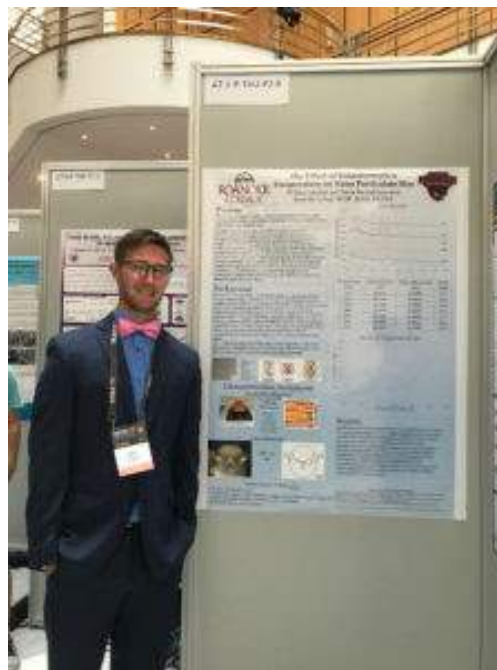
undergraduate researchers throughout the university and guided them in successfully competing for prestigious national scholarships and recognition. He epitomizes the aims of our land-grant mission in providing world-class learning opportunities for our students.”

Said Peak, “I established a boot camp for training Goldwater Scholar applicants, in part, because I enjoy interacting with bright, incipient scientists and engineers. But, as a land-grant university professor, I also feel I should assist my state’s citizens to gain equal access to opportunities available at better-known, more expensive, universities. Accordingly, many of my boot campers are first-generation college students from rural, agricultural backgrounds. Many initially have no idea what a creative and scholarly career might entail. My passion is to light in them the fire to pursue such a life.”

Liam Lambert – Travel Award Report

Liam Lambert, physics major at Roanoke College in Salem VA, was awarded a travel award to attend and present at EUROMAT 2017 held in Thessaloniki, Greece, on September 18–22, 2017. EUROMAT is the premier international congress in the field of materials in Europe. This is the first time, in recent years, an undergraduate physics major from Roanoke traveled abroad to present at an international conference.

Liam presented a poster on his research on the growth of nanocrystalline hematite from nanophase maghemite via solid state transformation reaction pathways. His work specifically focused in understanding the mechanism of topotactile aggregation of crystallites to produce monodisperse nanoparticles of iron oxides used as catalyst for producing Y-shaped single wall carbon nanotubes.



Liam Lambert presenting his poster at EUROMAT 2017.

Liam and his research mentor, Dr. Rama Bala appreciate the funding support provided by CUR through this student travel award.

Kelsey Rook – Travel Award Report

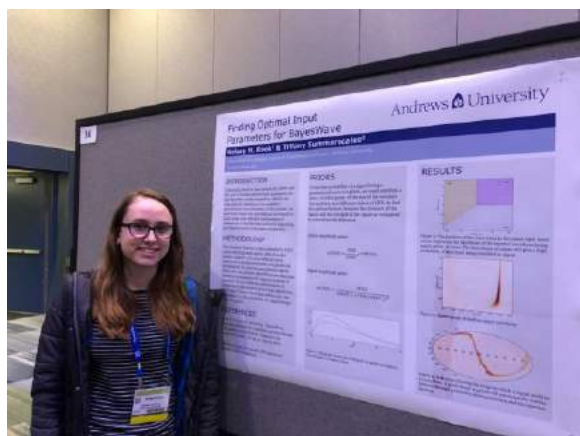
Thanks to a CURPA Travel Award, Kelsey Rook was able to present her research at the April 2018 Meeting of the American Physical Society in Columbus, Ohio. Kelsey is a computer science major and honors student at Andrews University. She is also a student member of the LIGO Scientific Collaboration and has been testing the effectiveness of different input parameters to a data analysis pipeline called BayesWave that determines the properties of gravitational wave signals measured by a network of detectors.

In addition to having the experience of presenting at a national conference, Kelsey especially enjoyed learning more about the interface of computing and physics and how large-scale computing is being used to solve physics problems.

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“Presenting at the April APS meeting not only got me out of my comfort zone while talking about my poster, but I was also able to engage with experts about their work in a similar area of research. Attending talks in many areas of physics was exciting even as a computer science student, especially during a session on the applications of computing in physics.”

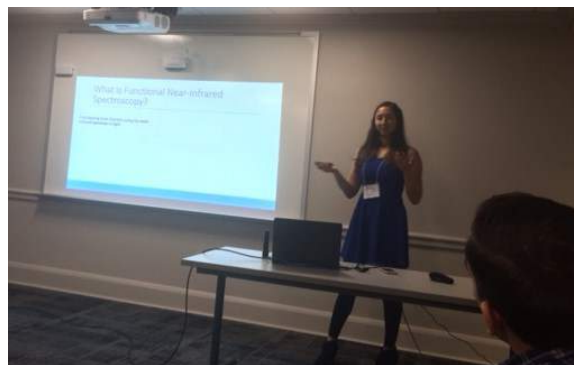
This past summer, Kelsey participated in an REU in computing at the Rochester Institute of Technology and plans on continuing with her LIGO research in the fall.



Kelsey Rook presenting her poster at the April APS meeting.

Amber Williams – Travel Award Report

Amber Williams, a physics major at Miami University of Ohio, was awarded a travel award from CUR to attend the annual meeting of the Biophotonics Congress—OSA's annual meeting on biomedical optics. It was her first experience presenting at an international professional meeting and was a great way for her to learn about the newest research, technologies and techniques in the fields of biomedical optics. She also got to



Amber Williams presenting her research at the Biophotonics Congress.

talk personally with researchers doing work that she'd previously only read about in articles and could now put a face to those names. As a graduating undergraduate, Amber is going to begin her doctoral program in bioengineering, and, as such, this meeting offered her an excellent chance to network with people in the field, several of whom she could potentially work with in the future.

Abigail Flom – Travel Award Report

Abigail Flom, a senior undergraduate student at Florida Tech majoring in planetary sciences, used her award to go to the 49th AAS Division for Planetary Sciences Meeting that was held in Provo, UT, in October 2017. Abigail was the lead author on a poster presentation regarding simulations of the atmospheres of Jovian planets that received very positive feedback. Abigail kept working on the project after the conference, and her results will be included in a paper that will be submitted in the next few months.



Abigail Flom

CURPA Councilor Maria Bautista:**Why I Joined CUR**

Kapi`olani Community College is an institutional partner of the NSF Community College Undergraduate Research Initiative grant. KapCC has adopted undergraduate research experience as a retention and engagement tool for student success especially for our Native Hawaiian and underrepresented minority students. As part of CCURI, I was asked if I wanted to represent the CCs in CUR. I agreed to being nominated as a counselor for the Physics & Astronomy Division, not knowing what I was getting into. My one concern is that CC faculty do not have their own research laboratory. We engage our students with undergraduate research experience to prepare them for research when they transfer to the university. By joining the P & A Division and CUR, I was able to network with 4-year faculty and learned of their expectations for incoming students. I not only gained information from the P & A Division, but also networked with faculty in other disciplines. I have shared what I have learned with KapCC faculty in other disciplines. KapCC saw the value of my being a counselor and have agreed to pay for enhanced institutional membership in CUR.

CURPA Councilor Mark Biermann:**Why I Joined CUR**

The greatest benefit I have experienced from participating in CURPA has been the amazing network that I have been able to establish with this group of talented people. The members of CURPA have a strong affinity for the issues of importance to me, and they are a constant source of insight and wisdom.

CURPA Councilor Saida Caballero:**Why I Joined CUR**

I participated in NCUR as a freshman undergraduate. Serving as a CUR councilor

is an opportunity to give back and encourage the next generation of researchers.

CURPA Councilor Chris Fuse:**Why I Joined CUR**

I joined CUR because I never had the chance to do research as an undergraduate. When I began grad school, I saw how other students had benefited from a research experience. This is the reason why I took a job at a liberal arts college in a physics department that emphasizes research. CUR gives me the opportunity to help students beyond my campus participate in research.

Opportunities

If you have a job opening or program that you would like to advertise here, please send the information to [Richard Thompson](mailto:Richard.Thompson@kapcc.edu) for inclusion in the next newsletter.

NASA Research Announcement

NASA has released the NASA Research Announcement (NRA) titled “Use of the NASA Physical Sciences Informatics System—Appendix E,” which solicits ground-based research proposals to generate new scientific insights by utilizing experimental data residing in NASA’s Physical Sciences Informatics (PSI) system (<https://psi.nasa.gov>). This online database provides investigators access to the raw and processed experimental data from physical science reduced-gravity flight experiments conducted on the International Space Station, Space Shuttle flights, Free Flyers, or commercial cargo flights to and from the ISS, and from related ground-based studies.

The current call for proposals solicits proposals in the five research areas—combustion science, complex fluids, fluid physics, fundamental physics, and materials science—for which eligible experimental data will be available in the PSI by the proposal due date of December 14, 2018.

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Data from 55 investigations are eligible for this NRA. The call is open to two types of investigators: established researchers and graduate students. Anticipated award amounts, eligibility requirements, and further instructions for both types of investigators are provided in the solicitation document, which is available at <https://tinyurl.com/NASA-PSI-E>.

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CURPA News Deadline

CURPA News is published three times per year, and we welcome your contributions! Please send your submissions, comments, achievements, opportunities, etc. to [Richard Thompson](mailto:Richard.Thompson). Deadline for the Winter 2019 issue is **January 18, 2019**.