Message from the Chair

To start 2013, I’d like to highlight the work of CUR Physics and Astronomy councilors during the past year. Nadine Barlow continues her outstanding job as editor of this newsletter. Chris Hughes did a consulting visit to Union College to help them integrate undergraduate research into their strategic planning. He also did a program review of the NSF-funded PRISM program at CSU-San Bernardino. A number of other councilors also directed program reviews at institutions such as Kutztown University and The College of New Jersey. Neal Abraham participated in the CUR-Curriculum Integration Teaching and Research Institute. He also contributed a chapter "Administrative Support for Faculty Members who Engage in Undergraduate Research" to the new CUR book "Faculty Support and Undergraduate Research: Innovations in Faculty Role Definition, Workload and Reward". Finally, CUR P&A councilors continued their annual tradition of serving as reviewers for the CUR Posters on the Hill event. This is just a sampling of the work done by councilors, but it illustrates the breadth of opportunities available for new councilors, and quite separately, the resources available to your own department through CUR.

On that note, you will soon be asked to vote in the upcoming CUR Councilor elections, so please take a minute and cast your ballot. And, if you are still on the fence about running for councilor, there’s still time to submit your own name as a write-in candidate (contact John Armstrong at jcararmstrong@weber.edu if interested). Remember: CUR is the primary national organization that gives visibility to the challenges and rewards of faculty-mentored student research, so please participate by voting and running for councilor.

So, what is one advantage of being a CUR P&A member? Eligibility for funding for your students to attend NCUR!

The CUR Physics and Astronomy division is pleased to offer financial awards for students attending the National Conference on Undergraduate Research (NCUR) at the University of Wisconsin-La Crosse, April 11-13, 2013. Over 3000 students from 300 universities (comprehensive research universities to small liberal arts colleges) present their research at NCUR. Most student presenters are seniors followed by juniors, and represent nearly all academic disciplines. The awards will help cover the cost of NCUR registration—more details on how to apply can be found in the announcement on page 4 in this newsletter.

In closing, congratulations go out to councilor Gubbi Sudhakaran. His physics program at the University of Wisconsin-LaCrosse has been selected to receive the 2013 American Physical Society (APS) "Improving the Undergraduate Physics Education Award". The Award will be presented at the 2013 APS April Meeting in Denver, CO. A well-deserved award, indeed!

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**NCUR 2013:**
The University of Wisconsin-La Crosse (UW-L) is hosting the 27th National Conference on Undergraduate Research (NCUR) on April 11-13, 2013 and preparations are well underway to welcome more than 3,000 participants to the UW-L campus. For detailed information, please visit the conference website at www.cur.org/ncur_2013/.

**Participant Profile**
- Bright, motivated, and talented students (in addition to faculty mentors and administrators) from approximately 300 research universities, comprehensive universities, and private liberal arts colleges will present their research and creative works in most fields of study.
- This year a record 3,431 student abstracts were submitted and 3,054 have been accepted (1,498 oral, 1,489 poster, 48 visual arts, and 19 performing arts presentations).
- Conference attendance is expected to be 3,300–3,500 and, based on abstract submission, will likely represent 47 states plus the District of Columbia, Puerto Rico, Canada, the UK, Australia, and the United Arab Emirates.
- Students also have an opportunity to publish their scholarly work in the NCUR Conference Proceedings.

**Conference Program Highlights**
- **Plenary Speakers**
  - Will Steger is a polar explorer, the recipient of numerous prestigious awards (including the National Geographic Society’s John Oliver La Gorce Medal), a recognized authority on polar environmental issues (including global climate change), and the author of *Crossing Antarctica, Saving the Earth, Over the Top of the World,* and *North to the Pole.* (Thursday, April 11)
  - Hazel Barton is a renowned microbiologist and a recipient of a National Science Foundation Career Award whose research involves the exploration of caves in countries around the world, including Belize, England, Greece, Greenland, Guatemala, Mexico, New Zealand, the United States, Venezuela, and Wales. Her applied research includes the investigation of white-nose disease (WND) in bats—a disease of great national significance. (Friday, April 12)
  - Bill Miller is a Mohican Indian who is a three-time Grammy award winner and recipient of the Native American Music Awards for Best Songwriter, Song, Folk Artist and Artist of the Year. His website notes that “Using three elements, his heritage, life experience and spiritual path, Bill shares his message of transformation through reconciliation.” (Saturday, April 13)
• **Graduate and Professional School Fair**
  The Graduate and Professional School Fair (at least 100 schools are anticipated to be in attendance—more than 60 are already registered) is scheduled in conjunction with the poster sessions. The venue for these joint activities is Mitchell Hall field house, a facility of approximately 40,000 square feet that will provide a great opportunity for robust interactions among conferees.

• **Special Presentations to Students About Graduate and Professional Schools and Careers**
  - Preparation for and Application to Graduate and Professional Schools
  - Gateway to the Future—Career Paths in the Biomedical Sciences
  - Training and Educational Opportunities For Students in Developmental Biology and Physiology

• **Faculty Administrative Network (FAN) Sessions**
  FAN sessions are designed to share best practices for undergraduate research and scholarship, and to provide opportunities for faculty and administrators to meet and share information. These sessions take place each day during the breaks between student presentations.

• **Friday Evening Event**
  *Bridging Creativity and Culture While Building Global Communities: An evening of international food and entertainment*: The NCUR 2013 featured event on Friday evening, April 12, will have an international focus and will integrate the University of Wisconsin-La Crosse International Education Program with NCUR. The program will begin with a presentation of flags from around the world carried by international students from both UW-L and NCUR and will be led by the La Crosse Fife and Drum Corps. After opening remarks, there will be a talent show consisting of approximately six international performances.

• **Excursions**
  - La Crosse Queen Paddlewheeler Cruise on the Mississippi River
  - Myrick Hixon EcoPark Night Hike
  - A Night of Bowling
  - Shenanigans Entertainment Center: ropes course, bumper cars, laser tag, rock wall, arcade games
  - SCVNGR—a game about going places, doing challenges and earning points via a smart-phone app

**Traveling to La Crosse**

• La Crosse is easily accessible via air transportation from major metropolitan areas (Minneapolis, Chicago, Detroit) by Delta and American Airlines. La Crosse is reachable by Interstate Highway 90 and Amtrak rail service. For conferees who choose not to fly directly into La Crosse, a special **NCUR airport transportation web reservation portal** is being developed to offer convenient shuttle service to La Crosse from the airports in Minneapolis, MN; Rochester, MN; and Madison, WI.

• At peak arrival and departure times, UW-L will provide local shuttle service from and to the local airport, and between UW-L and hotels in La Crosse.
Crosse and Onalaska, WI. Hotels providing accommodations and those with UW-L shuttle service are currently posted on the NCUR 2013 website. Shuttle schedules will be posted at a later date.

Ron Rada and Gubbi Sudhakaran
University of Wisconsin-La Crosse

2013 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 Wisconsin-La Crosse, April 11-13, 2013. Over 3000 students from a wide array of academic disciplines are expected to present their research, scholarly and creative work.

Applying for the travel award is easy! When your abstract is accepted by NCUR, send a single email to David McGee (mcgeed@tcnj.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 $185 student registration fee paid by the CUR Physics and Astronomy Division. Notification of abstract acceptance is scheduled to be made January 22, 2013.

For additional information, please consult the NCUR website at cur.org/ncur_2013, or contact Dave McGee by phone or email.

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 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.

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Ways to Support Undergraduate Research:
The CUR Physics and Astronomy Division unanimously approved the following statement in 2010:

“We call upon this nation’s physics and astronomy departments to provide, as an element of best practice, all undergraduate physics and astronomy majors a significant research experience.”

One of the biggest concerns that CUR P&A Councilors have heard in response to this statement is how to provide so many undergraduate research opportunities to our students. Our departments are often small with a limited number of faculty conducting research. All of us have many other duties besides conducting research and mentoring undergraduate researchers, including teaching, administration, and service to both our institution and our professional community. And of course there is always the question involving the “F” word: How do I find FUNDING to support the research efforts of undergraduate students? Here are a
few suggestions to get you thinking about how our undergraduate students can receive a research experience in spite of limited resources.

- Divide the students in your class into small groups and have each group conduct a different research project through the semester.
- Offer research as an opportunity for involvement in your student clubs (SPS, Astronomy Club, etc.).
- There are a large number of research internship programs offered around the country each summer. I expect that all of us are familiar with NSF’s Research Experiences for Undergraduates (REU) programs (nsf.gov/crssprgm/reu/reu_search.cfm), but there are many others that also exist. Don’t forget about programs through organizations such as the Department of Energy (dep.anl.gov/p_undergrad/summer.htm) and NASA Centers and facilities (science.nasa.gov/researchers/sara/student-programs/).
- Regarding academic year programs, every state has a NASA Space Grant Consortium which offers an undergraduate research program. The program is run a bit differently in each state—in some cases you submit an application to the lead Space Grant institution, in other cases you submit it to your institution’s Space Grant office. Sometimes the award is a scholarship or fellowship, other times it is an internship. Space Grant funds students from a wide range of disciplines—the only requirement is that the project must relate to NASA’s interests, which include ALL natural sciences, engineering, math, and STEM education.

- Many colleges/universities have research programs/scholarships for students from underrepresented groups, in certain majors, investigating specific topics, etc. Your Research Office should be able to provide you with information about your campus opportunities.

In other words, there are a number of ways for undergraduate physics and astronomy majors to acquire a research experience beyond the well-known professor-provided research opportunities and summer REU programs. Look around, talk to others, and think outside the box—remember, students are often willing to get that research experience even if it only involves course credit instead of money. Many opportunities go unused because people do not apply, so take the initiative and check them out. You might be surprised at the number of ways available for your students to get that research experience that will help make them competitive for graduate school and jobs.

Nadine G. Barlow
Director, NAU/NASA Space Grant
Northern Arizona University

Kudos To:

Kerry Olivier, Central Washington University: Kerry presented “New far-infrared laser emissions from formic acid and several of its isotopic forms” at the Murdock Regional Science Conference in October (Mentor: Mike Jackson)

Gubbi Sudhakaran, University of Wisconsin La Crosse: Gubbi is on the leadership team organizing NCUR 2013 at UW-L. Over 3400 abstracts were submitted and NCUR promises to be a terrific conference. In addition, Gubbi’s physics program at the UW-L has been selected to receive the 2013 American Physical Society (APS) "Improving the Undergraduate Physics Education Award".
2013 Posters on the Hill:
About 800 applications were received for the 2013 Posters on the Hill. Applications are currently under review with the goal of finalizing participants in early February. This event, where undergraduate students discuss their research with members of Congress and their staffers, will be held in Washington, DC, in April 2013.

2014 CUR Fellows:
The CUR Fellows awards are presented at the biennial Conference to two CUR members who have influenced undergraduate research through their own research, through scholarly or creative projects with undergraduates, and through demonstrated leadership activities. Over 20 nominations were received for the 2014 CUR Fellows. The committee is currently evaluating these applications to determine which nominees will be invited to submit full applications. Winners will be recognized at the 2014 CUR Conference in Washington, DC.

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 Spring 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:
VJ Agarwal, Minnesota State University Mankato.
John Armstrong, Weber State University. CUR Nominations Committee.
Nadine Barlow, Northern Arizona University. CURPA News Editor.
Mark Biermann, Taylor University.
Horace Crogman, La Sierra University.
Beth Cunningham, AAPT.
Chris Hughes, James Madison University.
Michael Jackson, Central Washington University. Co-Chair CUR Fellows Review Task Force.
Bryan Luther, Concordia College Moorhead.
Duncan McBride, National Science Foundation.
CUR Treasurer and CUR Investments Committee.
David McGee, The College of New Jersey. CURPA Chair.
Sorinel Oprisan, College of Charleston.
Terry Oswalt, Florida Institute of Technology.
Allyn Smith, Austin Peay State University.
Gubbi Sudhakaran, University of Wisconsin La Crosse.
Richard Thompson, The College of Saint Rose.
Hank Yochum, Sweet Briar College. CURPA Secretary and CUR Quarterly Editors Board.
Jie Zou, Eastern Illinois University.

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 Spring 2013 issue is April 1, 2013.