September 27, 2016

PHYSICAL AND BIOLOGICAL SCIENCES COMMUNITY

Re: Fall 2016 Welcome Message

Dear Colleagues:

As the fall quarter swings into full gear, I hope that your summer was personally and professionally rewarding and that this time of year is as exciting for you as it has always been for me.

This year, we welcome nearly 1321 new frosh and transfer students, 136 new graduate students, and nine new faculty members to the division. What follows are highlights of the year's divisional accomplishments. I invite you all to take time to acknowledge and celebrate your own unit's individual achievements as well. Please accept my appreciation for all of your contributions to the division, and for your support, commitment, and service.

NEW FACULTY

Please join me in helping our new faculty feel at home at UC Santa Cruz. They are a tremendous asset to our division and we are fortunate to have them.

- Erika Check-Hayden, Science Communication
- Daniel Cristofaro-Gardiner, Mathematics (arriving in 2017-18)
- Ryan Foley, Astronomy & Astrophysics
- Alexie Leauthaud, Astronomy & Astrophysics
- Francois Monard, Mathematics
- Ruth Murray-Clay, Astronomy & Astrophysics
- Yuan Ping, Chemistry & Biochemistry
- Myriam Telus, Earth & Planetary Sciences (arriving in 2017-18)
- Jordan Ward, Molecular, Cell & Developmental Biology

PROMOTIONS

Join me in congratulating the following faculty on their promotion to Associate Professor (with tenure):

- Ian Garrick-Bethell, Earth & Planetary Sciences
- Rita Mehta, Ecology & Evolutionary Biology
- Eric Palkovacs, Ecology & Evolutionary Biology

The following faculty were promoted to Full Professor:

- Hinrich Boeger, Molecular, Cell & Developmental Biology
- Bin Chen, Molecular, Cell & Developmental Biology
- Samit Dasgupta, Mathematics
- Jason Nielsen, Physics
- Beth Shapiro, Ecology & Evolutionary Biology
- Yi Zuo, Molecular, Cell & Developmental Biology

The following faculty were promoted to Distinguished Professor (Above Scale):

- Ilan Benjamin, Chemistry & Biochemistry
- Bruce Cooperstein, Mathematics

RETIREMENTS AND SEPARATIONS

I want to acknowledge the hard work and dedication of the following faculty who retired in 2015-16:

- Tom Banks, Physics
- Roberto Bogomolni, Chemistry & Biochemistry
- Barry Bowman, Molecular, Cell & Developmental Biology
- Russ Flegal, Microbiology & Toxicology
- Geoff Mason, Mathematics
- Eli Silver, Earth & Planetary Sciences
- Steve Vogt, UC Observatories
- Stan Woosley, Astronomy & Astrophysics

In addition, two faculty members left UC Santa Cruz for other institutions. Please wish them well in their new positions.

- Mark Krumholz, Astronomy & Astrophysics
- Greg Laughlin, Astronomy & Astrophysics

NOTABLE FACULTY AWARDS, HONORS, AND RECOGNITION

Many of our faculty members and researchers were recognized with prestigious awards this year. Whether local, national or international, it is clear that their excellence moves science and society forward, far beyond the walls of their labs and classrooms. Join me in congratulating the following individuals:

- **Enrico Ramirez-Ruiz** (Professor, Astronomy & Astrophysics) was awarded the $5 million **Niels Bohr Professorship**. The five-year award will support an international research collaboration in theoretical astrophysics led by Ramirez-Ruiz, who will divide his time between UC Santa Cruz and the Niels Bohr Institute at the University of Copenhagen. He is one of seven international scholars selected for the program, which aims to attract top international researchers to Danish Universities.
- UCSC Natural Reserves Director **Gage Dayton** was appointed to the **Wilton W. Webster Jr. Presidential Chair**. The gift provides for research, teaching, and maintenance activities in the natural reserves, as well as for research internships and fellowships for students.
- **Anthony Aguirre** (Professor, Physics) was appointed to the **Faggin Family Presidential Chair for the Physics of Information**. The gift provides support for research and teaching on fundamental questions at the interface of physics and related fields such as mathematics, complex systems, biophysics and cognitive science, under the unifying theme of information in physics.
- UCSC was one of five campuses chosen to receive a $1.76 million **2016 Research Catalyst Award** from UC President Janet Napolitano. **Beth Shapiro** (Professor, EE Biology) is co-director of the project, which aims to develop a revolutionary bioinformatics toolkit to understand changes in gene expression and how threatened populations respond to changes in their habitats and the climate. The collaboration will involve undergraduate students and the public in a DNA-based biodiversity survey across California. Shapiro and project Leader Robert Wayne of UCLA developed the project with three broad aims for advancing the role of genomics in effective conservation: to develop new approaches, to perform cutting-edge research in conservation, and to give broader community access to these tools and research results.
- **Kristy Kroeker** (Assistant Professor, EE Biology) was awarded a fellowship from the **David & Lucile Packard Foundation**. The Packard Fellowship, one of the nation's most prestigious honors for young faculty members, gives Kristy $875,000 over the next five years to support her research on environmental change in dynamic environments and complex ecosystems.
- IMS Research Scientist **Adina Paytan** received the **Dansgaard Award** from the American Geological Union in December 2015. The Dansgaard Award recognizes exceptional promise for continued leadership in

paleoceanography or paleoclimatology and contributions to the field such as research impact, innovative interdisciplinary work, educational accomplishments and mentoring, and societal impact.

- **Joel Primack** (Distinguished Professor Emeritus, Physics) was honored by the American Physical Society with the **2016 Leo Szilard Lectureship Award**, presented for "a crucial role in establishing the Congressional Science and Technology Policy Fellowships."
- **Susan Strome** (Distinguished Professor, MCD Biology) received the **2014-15 Outstanding Faculty Award** from the division. This annual award is the Physical & Biological Sciences Division's highest honor for faculty achievement, and recognizes combined excellence in research, teaching, and service.
- **Paul Koch,** Dean of the division and a professor of Earth & Planetary Sciences, was awarded the distinction of **AAAS Fellow** by the American Association for the Advancement of Science. Election as AAAS Fellow is an honor bestowed upon AAAS members by their peers.
- **Sue Carter** (Professor, Physics and Associate Dean of Graduate Studies) was one of ten recipients selected by UC President Janet Napolitano to receive the inaugural award for **Outstanding Faculty Leadership in Presidential Initiatives**. The honor recognizes Carter's efforts to deepen climate change teaching and research at UC Santa Cruz in support of UC's Carbon Neutrality Initiative.
- **Joseph Hoyt** (Ph.D. student, EE Biology) was awarded a prestigious **Switzer Environmental Fellowship** from the Robert and Patricia Switzer Foundation. It provides $15,000 to support Hoyt's research on the ecology of infectious wildlife diseases with a focus on the white-nose syndrome in bats.
- **Andrew Skemer** (Assistant Professor, Astronomy & Astrophysics) and **Kristy Kroeker** (Assistant Professor, EE Biology) were awarded **Sloan Research Fellowships**. The fellowships, awarded annually since 1955, are given to early-career scientists and scholars whose achievements and potential identify them as rising stars, the next generation of leaders. Fellows receive $55,000 to further their research.
- **James Zachos** (Professor, Earth & Planetary Sciences) received the **2016 Milutin Milankovic Medal** from the European Geosciences Union for his "groundbreaking contributions to documenting and understanding climate change through the Cenozoic." Zachos received the medal and gave the Milankovic Lecture at the EGU General Assembly this past April.
- In May, **Sandra Faber** (Astronomer Emeritus, UC Observatories) received an **honorary degree** from Amherst College in recognition of her many accomplishments and pioneering research on the formation and evolution of galaxies. Faber received the award during the 195th commencement ceremonies of the college.
- **Carrie Partch** (Assistant Professor, Chemistry & Biochemistry) was awarded a **2016 Junior Faculty Research Award** from the Society for Research on Biological Rhythms. Honored at the May 2016 meeting of the society, Partch was recognized for her contributions to bring structural biology and biophysics into the field of chronobiology. Chronobiology is the study of the biological clocks that drive the body's daily (circadian) rhythms.
- The Santa Cruz Museum of Natural History celebrated their inaugural Patron's Reception by honoring **Gary Griggs** (Distinguished Professor, Earth & Planetary Sciences and Director of IMS) with the **Laura Hecox Naturalist Award**. The award honors members of the Santa Cruz community who exemplify the museum's mission to connect people with nature in ways that help others understand and protect the wonders of the natural world.
- **Caitlin Binder** (Lecturer, Chemistry & Biochemistry) received the **2016 Ron Ruby Award for Teaching Excellence in the Sciences**. **Glenn Millhauser** (Distinguished Professor, Chemistry & Biochemistry) and **Richard Mitchell** (Lecturer, Mathematics) also received **excellence in teaching awards**. The awards honor instructors who have demonstrated exemplary and inspiring teaching. Students make the nominations for the awards, which include cash prizes.
- **The Women in Science Engineering Award** was given to **Adina Paytan** (Research Scientist, IMS) in recognition of her passionate advocacy for women and other underrepresented groups in the STEM fields.
- The UC Santa Cruz Sustainability Office and the Academic Senate's Committee on Research named **Kristy Kroeker** (Assistant Professor, EE Biology) the **Faculty Climate Action Champion for 2016-17.** She will receive $25,000 to fund activities outlined in a proposal she prepared and another $6,000 to host a Carbon

Neutrality Fellow, who will work with the sustainability office to support faculty and student engagement in climate action.

- **Andrew Fisher** (Professor, Earth & Planetary Sciences) received the Geological Society of America's **O.E. Meinzer Award** from its Hydrology Division for his influential research on groundwater and aquifers and on water circulation on the seafloor.
- **Robert Coe** (Distinguished Professor Emeritus, Earth & Planetary Sciences) was awarded the annual **John Adam Fleming Medal** by the American Geophysical Union in recognition for "original research and technical leadership in geomagnetism, atmospheric electricity, aeronomy, space physics, and/or related sciences." Coe is a geophysicist known for his research and contributions in the areas of geomagnetism and paleomagnetism.
- **Susan Schwartz** (Professor, Earth & Planetary Sciences) was elected a **Fellow of the American Geophysical Union** (AGU). The AGU fellows are a select group of distinguished scientists who have made exceptional contributions to their research fields and attained eminence in the Earth and space sciences. Schwartz, a seismologist, has expertise in the mechanical behavior of the plate interface at subduction zones.
- The Camille & Henry Dreyfus Foundation awarded **Phil Crews** (Distinguished Professor Emeritus, Chemistry and Biochemistry) a **2016 Senior Scientist Mentor Program Award**. Crews is one of five recipients chosen by the foundation for a $20,000 grant to emeritus faculty in the chemical sciences in support of undergraduate research to be conducted under their guidance.

Physical & Biological Sciences Division Staff Scholarship Award

- **Georgia R. Notin,** a student at the School of Art Institute of Chicago, was the winner of this year's **Physical & Biological Sciences Staff Scholarship.** Georgia, the daughter of Assistant Manager of Facilities, Chris Parker, received an award of $5,000. She plans to pursue a career in industrial design and sculpture.

DIVISIONAL ADMINISTRATION TRANSITIONS

This year saw many administrative transitions in the division. I especially want to offer my appreciation to the chairs who stepped out of service, and the many staff members who retired or moved on to other positions after many years of service to the division.

Department Chairs and ORU Directors

- **Christina Ravelo** succeeded Jon Zehr as chair of Ocean Sciences on July 1, 2016
- **Bill Saxton** succeeded Al Zahler as chair of Molecular, Cell & Developmental Biology on July 1, 2016

Department/Administrative Managers

- **Cathy Murphy**, formerly of Crown College Administration, was hired as the manager for Physics following the retirement of Sissy Madden
- There is an open recruitment for the Earth & Planetary Sciences department manager, as Judy Van Leuven has taken a new position in the Arts Division

Dean's Office/Business Offices

- **Hal Kuhns** replaced Michelle Asire as Manager of the PBSci Facilities Unit in November
- **Joe Cox** succeeded Dave Thayer as Manager of the PBSci Machine Shop in January
- **Rob Antrobus** was promoted to Physical Plant Mechanician upon Dan Frisch's retirement in June
- Research Accounting brought on two new employees this year: **Vivian Larkins** and **Rebekah Jamison** were hired in February
- **Melissa Lane** joined our Divisional Resources office in May
- **Kelly Keleher** joined the Academic Personnel/Payroll group in March
- **Linnea Leopold** and **Vanessa Schlegel** joined the dean's office in August

Restructuring of Undergraduate Affairs
The restructuring of undergraduate advising in PBSci is well underway. We have three new undergraduate advisers joining our team in fall: **Maria Nishanian** in Physics, **Ben Fisher** in Mathematics and **Justyn Vanderplas** in Chemistry and Biochemistry. There are two recruitments still in progress: a third position in Molecular, Cell and Developmental Biology and a second position in Ecology and Evolutionary Biology. Other current assignments are as follows: **Jade Loftus** in Earth & Planetary Sciences, **Betty O'Donnell** in EE Biology, and **Christina Navarro** and **Brenna Candelaria** in MCD Biology.

Our new advising team will continue to participate in the piloting of the new Student Success Collaborative Campus (SSC Campus), integrating new advising tools to streamline certain business processes and improve communications among all advising offices on campus. We are looking forward to exploring new ways to increase our time-to-degree, graduation, and retention in all science majors and will continue to partner with the STEM Diversity Center and Baskin School of Engineering for STEM Transfer Days and other outreach events.

ACE and Cal Teach
ACE continues to offer specialized active learning, problem solving sessions and peer mentoring that supplement selected math and science courses. ACE is open to undergraduates with proposed or declared STEM majors and who will contribute to a diverse and motivated learning team. Priority is given to EOP STEM students. ACE continues to grow in the number of students it serves (last year about 675 individual students sat in nearly 1300 seats), meaning many students enjoyed ACE support for several of their STEM classes throughout the academic year.

In 2015-16, Cal Teach completed its first decade at UCSC recruiting and preparing STEM majors for middle- and high-school science and math teaching careers, especially in high-need schools. Each year enrollments total about 120 in school-based internships in Santa Cruz County that are tied to supporting seminars hosted by the Education Department. These courses are typically taught by experienced secondary teachers, and they are integrated into undergraduate major pathways in Earth Sciences, Biology, and Physics.

In 2015-16 Cal Teach collaborated with the division's HHMI project to integrate undergraduate Learning Assistants into transformed active learning courses. Also, divisional faculty **Rita Mehta**, **Beth Shapiro**, and **Nandini Bhattacharya** mentored Cal Teach students in paid internships. **Judith Montgomery** from the Math Department also continued to mentor Cal Teach interns. Last week, 39 Cal Teach interns completed one-week intensive internships in high-need rural and urban schools in the Salinas Valley and east San Jose.

Since the program's inception in spring quarter 2006, about 550 Cal Teach participants have graduated and more than 30% of graduates (~170) have pursued a teaching credential; graduates are in great demand locally, and many are teaching in Santa Cruz County, the broader Monterey and San Francisco Bay areas, throughout California and beyond.

EXTRAMURAL AWARDS AND GIFTS
In 2015-16, extramural awards totaled ~ $56.3 million, a modest increase over the previous year.

For 2015-16, the Division received ~$12 million in gifts, and was fortunate to receive several significant gifts:

- A $560,000 multi-year gift from **Wells Fargo Company** to provide fellowships and course support for the new Coastal Sustainability Graduate program

- A $500,000 gift to create the **Wilton W. Webster, Jr. Presidential Chair** for UCSC Natural Reserves. This gift was matched with $500,000 by the UC Office of the President
- Another $500,000 gift from the **Helen and Will Webster Foundation** and a $500,000 gift from **Mark Headley** to create the Presidential Chair in Science Communication. These gifts were matched with $500,000 by the UC Office of the President, and we are looking for an additional $500,000 gift to name the chair.
- A $450,000 gift from retired astronomy research scientist **Arnold Klemola** to establish the James Edward Keeler Fund for Excellence in Astronomy & Astrophysics
- **2 anonymous donors** joined forces to pledge $200K over 5 years for the Cary Lu Fellowship in Science Communication
- **James Gunderson** and **Valerie Boom** gave $160,000 to establish a startup chair in Theoretical Astrophysics
- A gift of $100,000 was made to the new **Future Leaders in Coastal Science Award** to support research by teams of graduate and undergraduate students on problems in coastal science and sustainability
- A gift of $110,000 from the **Achievement Rewards for College Scientists (ARCS) Foundation** for the 2015-16 academic year provided fellowships to 11 graduate students. This year's ARCS scholars represent the Science Communication Program and the Departments of Astronomy and Astrophysics; Earth and Planetary Sciences; Ecology and Evolutionary Biology; Mathematics; Microbiology and Environmental Toxicology; Molecular, Cell, and Developmental Biology; and Physics.
- The **Santa Cruz Cancer Benefit Group** provided $50,000 in cancer research awards for faculty labs this year and they gave $25,000 to endow an undergraduate award

We also received many smaller current use gifts in support of programs across the division for research, student support, and programs.

CAPITAL PLANNING AND SPACE RENOVATION, 2015-16
The Facilities unit will be busy coordinating renovation projects this year to support the research of our newest faculty members. In addition, we continue to move our planned capital projects forward. These include:

- Construction on the **Coastal Biology Building** (CBB) began in May 2015 and is scheduled for completion in spring 2017. CBB will house nearly all of the faculty and staff in the EEB Department. The building will be approximately 40,000 square feet, supporting wet lab research, instruction, and department administration. Two state-of-the-art greenhouses are also included in the project. This project releases much needed space on the main campus in Earth and Marine Sciences.

- The **Marine Mammal Pools** project has just begun, and will refurbish, repair, replace, and expand the marine mammal pools on the Coastal Science campus. The project is important for the continuation of our research on marine mammals and other large vertebrates.

- The **HHMI-funded Active Learning Classroom** (ALC), set in motion by a $1.5 million dollar grant from HHMI, will be located in the Science and Engineering Library. Renovations are scheduled to begin early in 2016. The ALC will accommodate ~100 students in a technologically robust environment and will provide for collaborative, inquiry- and project-based teaching and learning in introductory biology, chemistry and physics courses.

- The **2300 Delaware "Warm Shell" Project**, a.k.a the "Alterations for Academic Programs," continues. This is space within the 2300 Delaware space in building "C" that is being prepared to receive the future build-out of functional spaces. Currently research labs for Physics Professor David Lederman and Assistant Professor

Jairo Velasco are under construction and are slated for completion in October 2016 and January 2017 respectively.

NEW ACADEMIC PROGRAMS ON THE HORIZON

In 2016-17, two new academic programs were approved: the Microbiology and Environmental Toxicology contiguous BS/MS program and the certificate program in STEM Teaching. The division has transmitted the Coastal Science and Policy MS proposal to the UCSC Academic Senate for review. We anticipate a Fall 2018 start date for this exciting new program. The Environmental Sciences BS proposal will be reviewed this fall and we hope to launch the new program in 2017-18. Faculty members in several of our departments are collaborating with each other and with colleagues in BSOE on the development of a new academic program in Materials Science. Campus administration and the division's multi-year hiring plan support growth in these areas, which reflect our focus on continued development of interdisciplinary research and teaching.

BUDGET

The campus continues to face a structural (permanent) deficit and anticipates multi-year budget cuts to close the gap. While the exact size of the campus budget gap is unknown at this point, two things have made it larger than earlier projections: a) overhead return from contracts and grants is lower, and b) non-resident tuition is below target.

This year, the campus assigned a cut to the division totalling ~$365,000, linked to a incentive program to increase summer session enrollment. Your help in increasing our summer offerings will allow the division to cover the cut with the increase in summer session revenues. In this way, I hope to avoid having to pass this cut along to the departments.

Because we have less flexible resources, we have already begun a series of belt-tightening measures. The EVC has helped us with some one-time funds to support new faculty start-up costs, without which we would have to slow the pace of recruitment considerably.

Despite the uncertain budget climate, we have a lot to be thankful for: committed faculty, a crop of excited new students, cutting-edge programs, and increasing external recognition.

In closing, I wish you all a successful year and again thank you for all the work you do to support the success of the division.

Sincerely,

Paul L. Koch
Dean