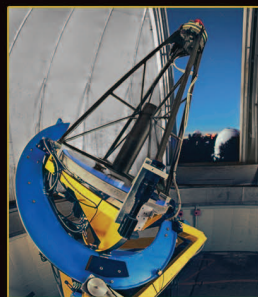
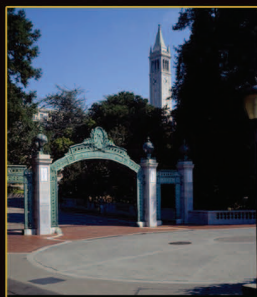


BERKELEY ASTRONOMY



University of California 2013

From the Chair's Desk...

The Astronomy Department is a vibrant, evolving community. It's hard to fully capture all that is happening here in a few brief paragraphs, but I'll try to provide some highlights!

Our faculty continue to receive recognition at the highest levels for their research. Eliot Quataert was named a Simons Investigator, a five-year award and a prestigious honor in its inaugural year. Geoff Marcy remains at the epicenter in the search for extrasolar planets; he received a \$1M grant from the W.M. Keck Foundation to build a state-of-the-art spectrometer to observe Earth-sized exoplanets. He also received a grant from the Templeton Foundation to search for intelligent life outside our solar system, which dovetails nicely with his appointment last year as the Watson and Marilyn Alberts Chair in the Search for Extraterrestrial Intelligence (SETI). Josh Bloom's research in the development of statistical and machine-learning techniques has enabled him to be integrally involved with the exciting, new Simons Institute for the Theory of Computing, established by a \$60M grant from the Simons Foundation. Eugene Chiang was appointed as the new Director for Astronomy's Center for Integrative Planetary Science (CIPS), replacing Geoff Marcy who stepped down after eleven years at the helm.

We've held a number of engaging events over the past year: In May, Josh Bloom hosted the workshop *Data to Knowledge: Machine-Learning with Real-time and Streaming Applications* which attracted a wide audience from academia and industry, including many Silicon Valley participants. In the early fall, we commemorated the retirement of Chris McKee with a three-day workshop, *Star Formation and the Interstellar Medium: Thirty-five Years Later*. Rather than hosting an exclusive

retirement event, its scope was expanded to celebrate the trio of 70th birthdays for Chris McKee, former faculty member Frank Shu, and David Hollenbach, research scientist and frequent collaborator. In October we hosted our annual *Raymond and Beverly*

Sackler Distinguished Lecture in Astronomy, a public talk that featured Nobel Laureate and Berkeley alum Adam Riess. His inspiring lecture was followed by a lively reception and dinner.

In addition to pursuing innovative new research, our faculty remain devoted to teaching. Alex Filippenko was chosen for a once-in-a-lifetime opportunity to fly with the Blue Angels through their "Key Influencers" program; he used that experience to

teach physics concepts to his students. Josh Bloom organized his second annual Python Scientific Computing Language Bootcamp. This three-day summer workshop has been immensely popular, with over 400 past attendees, including students, postdocs and researchers from different departments across campus. Burkhard Militzer, joint Earth & Planetary Science / Astronomy Professor, is once again pioneering online education at Berkeley, offering a summer online course, *The Planets*.

Our undergraduate, graduate, and postdoctoral programs continue to thrive. In 2012, 26 students graduated with a Bachelor's degree in Astronomy, and eight students were awarded their Ph.D. Six new students from across the country joined our graduate program this year. Two dozen postdoctoral fellows worked in the department, including those holding the Friends of Astrophysics Postdoctoral Fellowship and other coveted prize fellowships.

In addition to the rigorous research they pursue, our students and postdocs also find time to get involved in other interesting

career-building and public outreach activities. For example, two of our students made it through to the finals of the regional NASA *FameLab* competition, where budding scientists are judged on their ability to present their research and science. Based on his final placement in the competition, one of our graduate students, Josh Shiode, is still in the running for a wild card spot at the national NASA *FameLab* competition held in Washington DC in 2014. In today's media-intensive environment, the ability of astronomers to communicate their science is essential and this lively, fun competition not only recognizes those who can do this well, but also enables participants to attend a communications workshop, led by professionals, to further develop their presentation skills.

I'd like to conclude this letter by talking about New Campbell Hall—our new home that will have an enormous impact on virtually all we do, every day. Construction of New Campbell Hall is on schedule and proceeding as planned. Final completion of the building is slated for September 2014, although efforts are underway to have the facility ready for occupancy by the start of classes in August of that year.

It's exciting to see the new building take shape. We're eagerly anticipating all the design

Continued on page 2



Chair Imke de Pater wears many different hats in the department.

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Chair's Desk from page 1

features that promise to facilitate research collaboration, enhance teaching and learning, and engage the public. The new building includes numerous open interaction spaces for informal meetings and discussions, with the hopes of bringing together those involved in theory, instrumentation, observations, and numerical modeling. The marvelous suspended pedestrian bridge on the south side of the building, linking New Campbell Hall with LeConte Hall, will fulfill a long-standing dream to promote interaction between astronomers and experimental physicists. On both sides of the bridge, open areas will be available for relaxed, informal discussions; other glassed-in rooms nearby will provide more private settings to meet.

The building's roof will feature both inside and outside spaces. Inside, a fully equipped room will serve both as boardroom and as an intimate space for small lectures. This enclosed space will open up on another space with floor to ceiling windows, offering sweeping views of the Bay. The outside upper deck will house one of the building's

highlights—a new state-of-the-art rooftop observatory to be used for teaching and public outreach events.

The Undergraduate Teaching Laboratory is another exciting component of the new building. In addition to a cluster of computers, it will have direct access to the radio telescopes on the roof of New Campbell Hall, as well as computer links to Leuschner Observatory's optical/infrared and radio telescopes. Our demanding core lab courses held in this space immerse our undergraduates in the world of astronomical signals, from the optical to the radio, and the modern instrumentation used to measure these signals. The new lab will provide all the components needed to learn about the statistical nature of astronomical signals, the filtering effects of instrumentation, noise and errors, data analysis and display, report writing, presentation, and teamwork. Our Teaching and Learning Center (TALC), a study space designed for freshmen and sophomores taking introductory courses in Astronomy, will be housed on the ground floor along with two large classrooms.

While the proceeds from state bonds and a grant from NIST have provided the majority of

the funding to rebuild New Campbell Hall, we are now looking to individual donors to help us realize the optimum potential for our new facility. In particular, we seek donors for our Student Observatory Fund, a fund that will enable our students, the astronomers of the future, to have full observational capabilities via the new rooftop observatory and other on- and off-site facilities, together covering the entire visible-to-radio wavelength range. For full details, see page 4-5. Your gifts are welcome—and essential—to realize our vision. We gratefully acknowledge the commitment of all those who demonstrate their support with a contribution or a pledge.

If you would like to learn more about how you can contribute, please contact me at imke@berkeley.edu or call the department at 510-642-8678.

Imke de Pater is a planetary scientist, specializing in radio and infrared observations of planets, including their magnetic fields, satellites and ring systems. During her summer break from Chair responsibilities, she was able to find time to teach at the 2012 Alphach summer school in Europe, guiding students to design a spacecraft mission concept to one of the giant planets.

Marcy Receives Keck Foundation Grant To Build 'Habitable World Spectrometer'

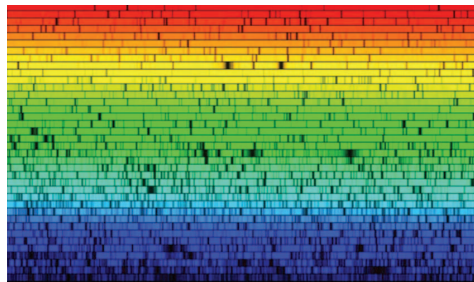
Professor Geoff Marcy was recently awarded a three-year \$1M research grant from the W.M. Keck Foundation to design and commission a state-of-the-art "Habitable Worlds Spectrometer" (HWS). Marcy and his team will use the new spectrometer to identify and survey Earth-sized planets in the habitable zones of 50 of the nearest, brightest stars, located within 20 parsecs – about 65 light years. "With the new spectrometer, we hope to discover the diversity of planetary systems, with goals of learning how our Earth formed and determining how many habitable planets are in the Milky Way Galaxy," he states.

Marcy's research group will also identify the architecture of any planetary systems discovered. This will include the spacing between the planets, the non-circular shapes of the planet orbits, and the preferred orbits for small and large planets. These structural features constitute key clues about the planet-formation mechanisms that must conspire to produce the array of architectures.

Once these nearby planets are detected, Marcy's team will conduct further research to measure host star properties. According to Marcy, "The mass and chemical composition of the host star may correlate with the properties of the planets such as their mass, orbital distance, or their occurrence rate. Such correlations inform the theories of

planet formation, allowing us to weed out incorrect theories and support correct ones."

The Habitable World Spectrometer will build on the novel design of the Levy Spectrometer. It will employ an octagonal fiber, split into four smaller fiber optics, which will delicately slice the star image in half. This innovation will shrink the size of the spectrometer by fifty percent, making it small enough to fit in a vacuum chamber, while still achieving optical efficiency, stability, and high spectral resolution. Completion and installation is estimated for year-end 2014.



A high resolution spectrum of a solar-type star, representative of those to be observed by the new Habitable Worlds Spectrometer. The multiple bands extending left-to-right represent brightness with increasing wavelength. Attaching each band to its neighbors produces the entire spectrum of colors from far blue to far red. The Doppler effect will be measured by the displacements of the hundreds of dark spectral lines that are scattered at various colors. Earth-size planets can be revealed by periodicities in those Doppler shifts.

Simons Foundation Chooses Berkeley

UC Berkeley was chosen to host the Simons Institute for the Theory of Computing, an exciting new venue for collaborative research in theoretical computer science funded by a \$60 million award from the Simons Foundation. The newly created Institute, housed on campus in Calvin Hall, will explore the mathematical foundations of computer science and extend them to tackle challenges in a variety of fields, such as astrophysics, genetics, health care, and economics. Since natural phenomena in fields such as astronomy are intrinsically computational in nature, the Institute aims to explore these through a computational lens.

Astronomy Professor Josh Bloom has been integrally involved with the Institute from the earliest stages of proposal development. His research provides an ideal example of the need for big data analytics: He has automated the process of identifying interesting events in the night sky, a continually changing decision process that requires choosing what to track from the millions of options available. He will lead an astronomy-focused workshop on Big Data in one of the Institute's first offerings in Fall 2013.

Theoretical Astrophysicist chosen as a new 2012 Simons Investigator

Eliot Quataert, Astronomy Professor and Director of the Theoretical Astrophysics Center at Berkeley, was recently selected as a 2012 Simons Investigator.

Quataert was among 21 mathematicians, theoretical physicists and theoretical computer scientists across the country chosen for this prestigious award in its inaugural year.



Eliot Quataert

Through the Simons Investigators Program, support will be provided to Quataert for an initial period of five years, with an anticipated renewal of an additional five years, according to Elizabeth Roy, program manager for the Simons Foundation's Division of Mathematics and the Physical Sciences. In its New York

Times announcement, the Simons Foundation stated, "The goal of the Simons Investigators Program is to provide a stable base of support for outstanding scientists in their most productive years, enabling them to undertake long term study of fundamental questions."

As with the MacArthur Foundation "Genius Awards," the recipients were unaware they were being considered for the award, and the money comes with no strings attached. "As Director of the Theoretical Astrophysics Center, Eliot has been a driving force in continuing UC Berkeley's leadership in this field," said Mark Richards, Dean of the Physical Sciences and Professor of Earth and Planetary Science. "Eliot's brilliance extends across the full spectrum of astrophysics theory, and through this breadth of vision he inspires not only our theorists, but

also observational and experimental astrophysicists. This award will free up Eliot to pursue bolder, higher risk work. The Simons Foundation has made a wonderful choice here."

With the funding provided by this program Quataert is interested in tackling research on the formation of galaxies and the behavior of matter very close to black holes. He plans to use the funding to support a group of postdocs and graduate students to work on a range of different problems. He will also purchase a cluster of computers to carry out large-scale numerical simulations. Perhaps most importantly, according to Quataert, the unrestricted Simons Foundation funding will give him the freedom and flexibility to explore new ideas and branch out into new research areas.

Filippenko Flies with the Blue Angels

Professor Alex Filippenko had the thrill of going along for the ride in one of the Navy's elite Blue Angels fighter jets during Fleet Week. Filippenko flew as part of the Blue Angels' Key Influencer Rider Program; he was chosen in part because of his role in the research that led to the 2011 Nobel Prize in Physics and in part because of his extensive efforts in public education and outreach.

Filippenko's jet was piloted by Navy Lt. Mark Tedrow, who took Berkeley's well-known black hole expert through rolls and turns where he felt the effects of 6.2 Gs — more than six times the force of gravity — as well

as weightlessness at 0 G and even negative Gs, all perfect conditions for experiments that later impressed Filippenko's Astro 10 students.

As he banked and rolled over the Bay Area, Filippenko took the opportunity to videotape in-flight physics lessons for his community outreach work. It was an "out-of-this-world experience," he wrote in an email. "We broke the sound barrier and did all kinds of sharp turns... It was incredible!"



Astronomer Alex Filippenko shows he's ready for take-off.

Exploring the Boundary Between Science and Science Fiction

Astronomy Professor Geoff Marcy is one of 20 innovative researchers who will share more than \$4 million awarded through the 2012 *New Frontiers in Astronomy & Cosmology* International Grants Program. The grants are funded by the Pennsylvania-based John Templeton Foundation as a way to encourage scientists and students worldwide to explore fundamental, big questions in astronomy and cosmology that engage groundbreaking ideas on the nature of the universe.

Marcy, who kicked off the search for extrasolar planets 20 years ago, is a member of the Kepler space telescope team that is observing the light from 160,000 stars in our galaxy in search of the ones that dim periodically because of a planet passing or transiting in front of them. With this funding from the Templeton Foundation, Marcy plans to rummage through data from Kepler in search

of evidence for civilizations advanced enough to have built massive orbiting "solar" power stations.

According to Marcy, the Kepler data being collected could possibly reveal stars with orbiting power stations called Dyson Spheres: megastructures that orbit a star and capture a large proportion of its energy. They were proposed by physicist Freeman Dyson more than 50 years ago as a likely way for advanced civilizations to fuel their power-hungry societies. Marcy will look at 1,000 of Kepler's extrasolar systems in search of solar arrays that pass in front of stars and make them wink on and off.

"Kepler has now discovered over 2,000 new worlds around other stars, most of them smaller than twice the size of Earth, and many probably having water," Marcy said. "This flood of nearly Earth-size planets offers the

first opportunity for us humans to hunt for other intelligent species that may have evolved on them."

Marcy's grant—\$200,000 for two years—will also pay for time on the enormous Keck telescopes in Hawaii to take spectra of 1,000 planet-hosting stars, in search of laser emissions from advanced civilizations.

"Technological civilizations may communicate with their space probes located throughout the galaxy by using laser beams, either in visible light or infrared light," he said. "Laser light is detectable from other civilizations because the power is concentrated into a narrow beam and the light is all at one specific color or frequency. The lasers outshine the host star at the color of the laser."

NEW CAMPBELL HALL

New Campbell Hall will house Berkeley's famed programs in astrophysics and cosmology. Featuring highly interactive laboratories, classrooms and meeting spaces, it will help ensure Berkeley's continued preeminence in research and teaching in the physical sciences. The new building will include state-of-the-art underground nanoscience laboratories, facilities for a vast spectrum of research in astronomy and cosmology, and a rooftop teaching observatory that will inspire and educate undergraduate students as well as the general public.

The facility will be vastly superior to its predecessor—not simply larger and seismically sound, but also equipped to accommodate the current and future needs of astrophysics and cosmology at Berkeley.

The building's design will encourage collaborations across disciplines, enabling informal interactions that spark breakthroughs and further discovery. The building's many features will also include:

- interaction spaces for faculty and students
- modern, expanded laboratories with instrumentation designed for use with remote telescopes
- classrooms with state-of-the-art multimedia technology
- a lobby with active displays to engage building visitors
- a bridge connecting New Campbell Hall with LeConte Hall



New Campbell hall rising.

Support for New Campbell Hall and the Student Observatory Fund

The State of California and the National Institute of Standards and Technology (NIST) are the largest funders of the \$80 million New Campbell Hall facility, but additional donations are essential for optimal use of the building by our Astronomy faculty and students.

A new Student Observatory Fund is being created. Our goal is to have it fully funded by the time the Astronomy Department moves into New Campbell Hall. Its purpose is two-fold:

- Maintain and operate the New Campbell Hall rooftop observatory over the long term, and
- Upgrade the undergraduate lab and telescopes used by our majors. In addition to the new rooftop observatory, these telescopes include the radio facility on the roof of New Campbell Hall and our off-site Leuschner Observatory.

For further information on how to donate to the Student Observatory Fund or to discuss how you may wish to contribute to New Campbell Hall, please contact Barbara Hoversten at bhovvers@astro.berkeley.edu or 510-642-8678.



Former dome before demolition.



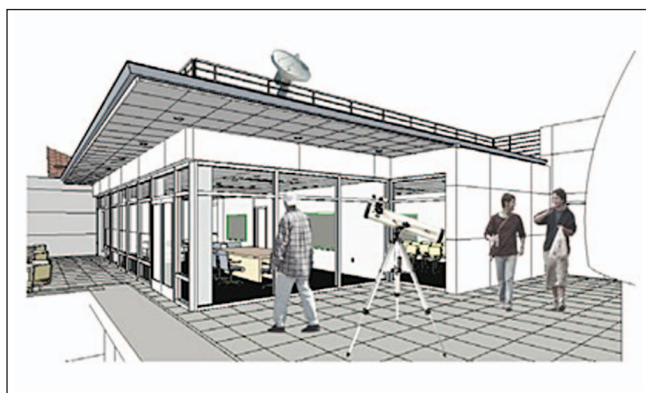
Ground-breaking Celebration, May 2012.



Pedestrian bridge linking New Campbell Hall with LeConte Hall.



New Campbell Hall rooftop: dome and meeting rooms. (above and right)

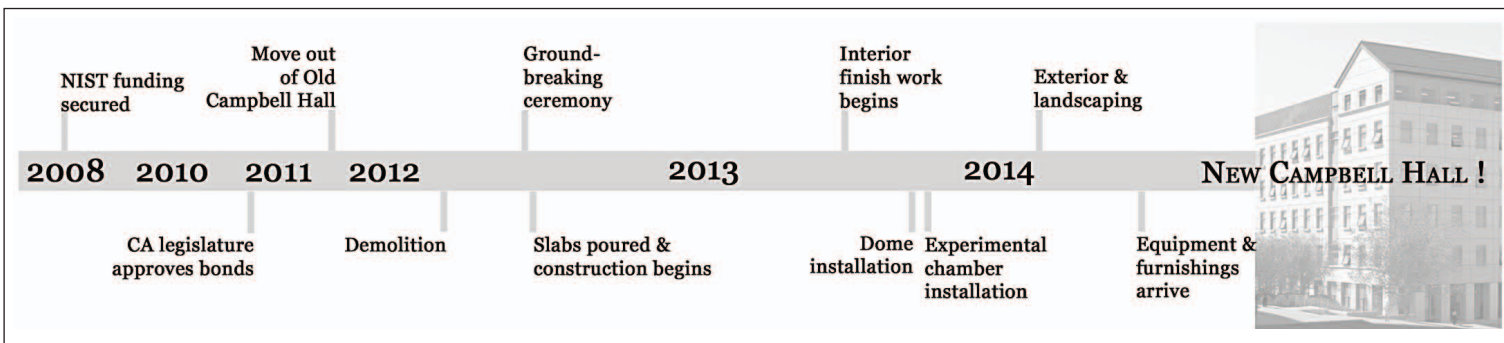


Who was 'Campbell'?

Campbell Hall is named for William Wallace Campbell, who served as the tenth President of the University of California from 1923 to 1930. Campbell was, by training and avocation, an astronomer. Educated at the University of Michigan, he came to the University of California's Lick Observatory in the 1890s and served as Director there for more than twenty years. "Campbell maintained the Lick Observatory in the front rank of the world's observatories. His achievements and publications in astronomical research were awarded wide recognition" (Centennial Record, p. 16). When he was offered the University's presidency, he made his acceptance contingent on the opportunity to continue a formal connection to Lick Observatory. Campbell retired as President of the University and as Director of the Lick Observatory in 1930. In 1931, he became President of the National Academy of Sciences and guided it through the early years of the Depression. When Campbell Hall was planned, Astronomy Professor Harold Weaver suggested naming the building after him. The Regents agreed and named the building in Campbell's honor, continuing a tradition of assigning the names of leading University administrators and faculty to academic buildings on the Berkeley campus.



New Campbell Hall lobby.



2012 AWARDS

MARY ELIZABETH UHL PRIZE

The Mary Elizabeth Uhl Prize is awarded each year to a graduate student for outstanding scholarly achievement. In 2012, Nicholas McConnell and Andrew Siemion were both chosen to receive the award.

Nicholas McConnell's research measured stellar motions in the Brightest Cluster Galaxies (BCGs) and compared them to models of galaxies to determine the mass of the central supermassive black hole in each galaxy. Working in collaboration with advisors Chung-Pei Ma and James Graham, he discovered two black holes with record-breaking masses of at least 10 billion suns. After completing his Ph.D. at Berkeley, McConnell accepted the Beatrice Watson Parrent Postdoctoral Fellowship at the University of Hawai'i, where he is continuing his research.

Andrew Siemion's research focused on designing instruments and experiments to detect rare and novel radio phenomena, specifically the detection and analysis of coherent sources of electromagnetic emission. Andrew is heavily involved in developing new computing technology and has organized and taught

digital instrumentation workshops at the Jet Propulsion Laboratory, the Academia Sinica Institute of Astronomy and Astrophysics in Taiwan, and the National Astronomical Observatories in China. He currently holds a joint research position with UC Berkeley and ASTRON, the Netherlands Institute for Radio Astronomy.

ROBERT J. TRUMPLER GRADUATE STUDENT AWARD

The Robert J. Trumpler Graduate Student Excellence Award recognizes academic excellence in the field of Astronomy. Jonathan Pober and Michael McCourt were chosen as co-recipients of this award in 2012.

"Jonathan Pober lost his original research advisor, Don Backer, midway through his graduate student career, but surmounted adversity to become a leading expert in the science and techniques of 21cm cosmology" according to Aaron Parsons, Pober's current advisor. He played a key role in presenting the PAPER (Precision Array for Probing the Epoch of Reionization) experiment to the NSF, helping secure funding for the project. He adapted techniques pioneered by the PAPER project to a new science application, seeking to measure the

accelerating expansion of the universe, presumably as the result of mysterious Dark Energy. Pober expects to complete his Ph.D. in 2013.

Michael McCourt, a 5th-year graduate student at Berkeley, worked with his advisor, Eliot Quataert, to understand the hot, tenuous gas filling clusters of galaxies. He led a number of studies on the physics of this gas, how it cools to form galaxies and fuel black hole growth, and how measurements of the gas can be used to infer the mass of the underlying dark matter halo. Michael is expected to graduate in spring 2014.

DOROTHEA KLUMPKE ROBERTS PRIZE IN ASTRONOMY

Pierre Christian was the 2012 recipient of the Dorothea Klumpke Roberts Prize for outstanding scholarly achievement by an upper-level undergraduate student. As an astronomy student at Berkeley, Christian studied the early-time infrared afterglow of GRBs using PAIRITEL, a robotic telescope located at Mt. Hopkins, AZ, and also conducted research on the cosmic microwave background. Christian is currently a graduate student at Harvard University.

CONGRATULATIONS

to our students who received their Ph.D.s this past academic year!

Katherine Alatalo

Advisor: Carl Heiles
Molecular Gas in Early-type Galaxies
Alatalo is now a postdoc at the California Institute of Technology.

Amber Bauermeister

Advisor: Leo Blitz
Galaxies through Cosmic Time: The Role of Molecular and Atomic Gas

Statia Luszcz-Cook,

Advisor: Imke de Pater
Millimeter and Near-Infrared Observations of Neptune's Atmospheric Dynamics
Luszcz-Cook is currently a postdoc at the American Museum of Natural History.

Mohan Ganeshaligham

Advisor: Alex Filippenko
The Photometric Properties of Nearby Type Ia Supernovae
Ganeshaligham is a Principle Research Associate at Lawrence Berkeley National Laboratory.

Eric Huff

Advisors: David Schlegel and Uros Seljak
Seeing in the Dark: A Cosmic Shear Measurement in the Sloan Digital Sky Survey
Huff is now a postdoc at Ohio State University.

Nicholas McConnell

Advisors: James Graham and Chung-Pei Ma
Black Hole Masses in Nearby Brightest Cluster Galaxies
McConnell is a Beatrice Watson Parrent Postdoctoral Fellow at the University of Hawai'i.

Andrew Siemion

Advisors: Geoff Bower and Dan Werthimer
Searches for Exotic Radio Sources and Intelligent Life on Other Worlds
Siemion currently holds a joint research position with UC Berkeley and ASTRON, the Netherlands Institute for Radio Astronomy.

Peter Williams

Advisor: Geoff Bower
Exploring the Dynamic Radio Sky with the Allen Telescope Array
Williams is now a postdoc at the Harvard-Smithsonian Center for Astrophysics.

RETIREMENT

Christopher McKee, a theoretical astrophysicist and distinguished faculty member at Berkeley since 1974, retired in 2012. McKee held a dual appointment in Astronomy and Physics. He was instrumental in establishing the Theoretical Astrophysics Center at Berkeley and served as its first director in 1985. Shortly thereafter, he relinquished that position to become Director of the Space Sciences Laboratory at Berkeley, a position he held until 1998. He was Chair of the Physics Department from 2000-2004 and co-chaired the 2000 decadal survey of astronomy and astrophysics for the National Academies. McKee is known for his research on the physical processes that occur in the interstellar medium, particularly in the mechanisms of star formation.

DEPARTMENT OF
ASTRONOMY
UNIVERSITY OF CALIFORNIA
BERKELEY

The Department of Astronomy wishes to thank the alumni, parents, students, faculty, staff and friends who so generously support us!

Please return this form with your check to:
Barbara Hoversten
University of California
Dept. of Astronomy
B20 Hearst Field Annex
MC 3411
Berkeley, CA 94720-3411

WE WELCOME YOUR GIFT!

Enclosed is my tax-deductible gift of:

\$5,000 \$2,500 \$1,000 \$500 \$250 \$100 Other \$ _____

Please direct my gift to:

The New Campbell Hall Student Observatory Fund

The Friends of Astronomy (Chair's Discretionary) Fund

Designate my gift to (other) _____

Please make your check for the Department of Astronomy payable to UC Regents.

In addition to my donation, a matching gift form from my employer:

Is enclosed or Will be mailed to the Astronomy Department separately

Please send me information related to giving through my estate. Send this information to my address listed below or contact me at the e-mail address or telephone number shown:

Name _____

Address _____

City/State/Zip: _____

Email: _____

Phone number: _____

You can also donate to the Astronomy Department online at:
<http://givetocal.berkeley.edu/search/?s=astronomy>

A portion of all gifts is used to defray the costs of administering the funds. All gifts are tax-deductible, as prescribed by law.

GIVING OPPORTUNITIES

As state funding has declined over the past decade, the Astronomy Department has increasingly relied on the generosity of alumni and friends to maintain excellence in research and teaching. Your support will ensure that Berkeley Astronomy continues to thrive in the years to come.

We invite you to make a gift to one of our funding priorities, listed below, or to a priority of your choice:

Student Observatory Fund

The new Student Observatory Fund is a vitally important investment in our future. It will sustain our new teaching observatory on the rooftop of New Campbell Hall and also upgrade our undergraduate lab and associated telescope facilities for our majors. See page 4 for further details.

Friends of UC Berkeley Astronomy

This unrestricted fund gives the department Chair the flexibility to allocate spending and resources on the highest priorities and new opportunities that arise. The fund supports important initiatives that benefit both students and faculty, including mentorship programs, conferences, technology upgrades, department activities and much more.

New Campbell Hall

Though the building itself has been funded, additional donations are needed for programmatic and facility enhancements. The new building will play a key role in inspiring and educating the next generation of astronomers.

Research

Until the Student Observatory Fund is fully funded, it remains our highest priority. We realize, however, that some of our donors are inspired to give to research. Please contact us if you would like to explore the option of supporting a faculty member or a specific line of research.

INCREASING THE IMPACT OF YOUR GIFT

Corporate Matching Gift Program

Many employers of all sizes will match your gifts to UC Berkeley. Consult the employer matching-gift search page: <http://givetocal.berkeley.edu/browse/?u=172> for further details.

New Alumni Challenge

Donations made by any undergraduate or graduate alumni from the Classes of 2008-09 to 2011-12 are eligible to be matched at a 1:1 ratio up to \$1,000. Donations made by new alumni from the class of 2012-13 will be matched at an even higher 2:1 ratio.

Endowment Matching Programs:

Endowments created for student support can be named in recognition of the donor or another honoree and may be eligible for matching through the following programs:

- The Graduate Fellowship Matching Program for gifts of \$50K or more
- The William and Grace Ford Undergraduate Scholarship Matching Program for endowments of \$100K

For further information, please contact:
Barbara Hoversten
bhovers@astro.berkeley.edu • 510-642-8678

University of California, Berkeley
Department of Astronomy
Hearst Field Annex MC 3411
Berkeley, CA 94720-3411

Upcoming Events:

Science@Cal Monthly Lectures

3rd Saturday of each month
11:00 a.m., UC Berkeley
Campus location changes each month
Consult website for details
<http://scienceatcal.berkeley.edu/lectures>

CalDay 2013

Saturday, April 20
9:00 a.m. – 4:00 p.m.
<http://calday.berkeley.edu>

Raymond & Beverly Sackler Distinguished Lecture in Astronomy

Please see the Astronomy website for
updated information in the Fall:
<http://astro.berkeley.edu>



Astronomy T-Shirts

Another “Starry Night at Cal”

The Annual Departmental T-Shirt Design Contest continues to provide distraction from the rigors of astrophysics and an opportunity to explore hidden artistic and creative talents.

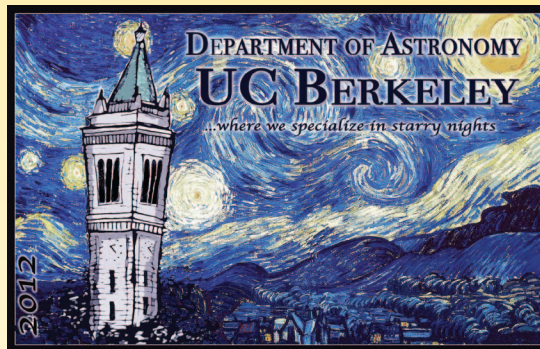
Last year's winner was “Starry Night at Cal,” submitted by staff member Barb Hoversten. Her colorful new design, as well as previous designs, are all available for purchase online:

<http://qmorgan.com/tshirts/>
\$16 plus shipping

Alumni and other friends of astronomy can now select a design to show their

true stars or find the perfect gift for their dearest stargazers, with all profits supporting Astronomy graduate student activities.

The design contest is held each year at the start of the Spring Semester, with the winning design selected and printed in time for Cal Day in April.



All Astronomy Department students, staff, faculty, postdocs, and researchers are welcome to submit their designs for consideration.

The winning design is determined by departmental vote. More information can be found on the department website, <http://astro.berkeley.edu>.

Astronomy News 2013 University of California, Berkeley

Newsletter Contributors: Imke de Pater, Rayna Helgens, Barb Hoversten, Robert Sanders.

Newsletter photography and graphics: Steve Croft, Noelle Filippenko, Laurie Hatch (www.lauriehatch.com), Barb Hoversten, Judey Miller, STUDIOS Architectural Design, Jim Wert

Banner photographs, L-R: 1. Sather Gate, University of California, Berkeley, 2. Keck Telescopes, Laser Guide Star, 3. Graduate student Ryan Foley and Professor Alex Filippenko in Keck II Control Room, 4. Katzman Automatic Imaging Telescope (KAIT), Lick Observatory, 5. The full moon above one of the CARMA antennae.

Banner photography provided by Laurie Hatch (www.lauriehatch.com), Keck Observatory, and Steve Croft.

Editor: Barbara Hoversten, bhovvers@astro.berkeley.edu
Design: Lisa Krieshok, lisa@krieshok.com