

Newsletter Welcome

Greetings! The campus follows on this year from a successful centennial celebration during the past year, and the department did well with its part, participating avidly in the activities and providing four public lectures by prominent physicists in the bargain. Now the campus begins the first year of its second century, and both campus and department face substantial changes.

The dire financial situation in California has translated to unprecedented budget shortfalls to UC, to the campus, and thereby to the department as well. The difficulties are being shared broadly, by furloughs (or their equivalent) to employees, by tuition/fee increases to students, and to cuts to budgets up and down the line. While it is clear that education will be affected, the entire university community is working hard to retain a quality education for our students. The budget shortfall means that many things will be done differently in the future, and the department is working to assume a leadership role in directing the process. The department of physics will survive as an effective and vibrant education and research unit, we just need to all work together and work with the campus.



Another change for the department is a most pleasant one. Geology has completed its move to the new EPS (Earth and Physical Science) building 100m to the south, and we are poised to expand into that space. The space has been sorely needed for well over a decade, and the new classroom space, research labs, offices, and meeting rooms will enable the department to expand its activities in all areas and transform our potential, first into kinetic energy and then into a general "field energy" that we can use as our fifth force to accomplish new science and to enhance education.

We welcome to the department our incoming class of graduate students, new physics majors and incoming faculty member Marusa Bradac as we look forward to meeting the challenges before us, capitalizing on the opportunities, and continuing our exciting discoveries in physics and astronomy.

-- Warren Pickett, Chair

New Arrivals

Faculty

Assistant Professor Marusa Bradac joined our faculty this summer, hired as part of the multi-disciplinary Universe @UC Davis Initiative. She previously worked at UCSB where she held a distinguished Hubble Fellowship, the Kavli Institute for Particle Astrophysics and Cosmology at Stanford University and the University of Bonn (where she did her PhD work). She is studying dark matter and using 'Cosmic Telescopes' to study the most distant objects we can see. You can read more about her research [here](#).



Assistant Professor Dong Yu joined our faculty in 2008 as part of the multi-disciplinary Energy for the Future Initiative. He previously held a postdoctoral position at Harvard University and did his graduate work at the University of Chicago. Dong is interested in nanoscale physics, particularly, electrical and optical properties of nanowires and nanocrystal quantum dots, and their applications in optoelectronic devices, such as solar cells, photodetectors, light emission diodes and lasers. His current research efforts are focused on two topics: narrow bandgap nanowires for solar cell and electroluminescence applications and transition metal doped nanowires. For more about his work, go [here](#).



Graduate students

We had 271 applications for a Fall 2009 start to graduate study in physics. We admitted 77 and 29 arrived. We extend a warm welcome to **Andrew Bradshaw** (Texas A&M), **Matthew Caulfield** (Stevens Institute of Technology), **Donald Cicchino** (Rutgers University), **Kevin Cleary** (Carnegie Mellon University), **Rylan Conway** (University of Delaware), **Fiona Ding** (Carnegie Mellon University), **Ralph Edezhath** (University of Maryland), **Michael Gardner** (Westmont College), **Jiayin Gu** (Durham University), **Aaron Hernley** (Carnegie Mellon University), **Anthony Kesich** (MIT), **Alison Mansheim** (University of Virginia), **Marius Milea** (Cornell University), **Tyler Otto** (Cal Poly, SLO), **Armela Perona** (UC Irvine), **Charles Pierce** (San Jose State University), **Benoit Richard** (University of Rochester), **Emily Ricks** (University of Virginia), **Britney Rutherford** (Southern Illinois University), **McCullen Sandora** (Cooper Union), **Evan Sangaline** (Bard College), **Andrew Scacco** (University of Colorado, Boulder), **Kent Shirer** (Northwestern University), **Desiree Abbott** (Purdue University), **Bret Stenger** (Tufts University), **Mark Triplett** (UCD), **Jennifer West** (UCSB), **Christopher Westenberger** (The College of New Jersey), and **Yiming Yang** (Tsinghua University).

Public Events

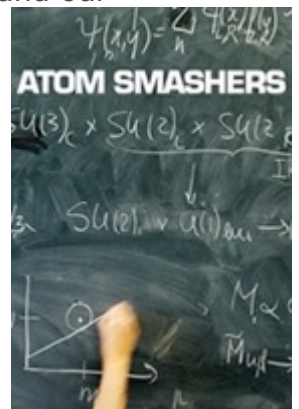
The physics department sponsored five fascinating public lectures and one film screening in the 2008-2009 year. To receive notice of future public events, register [here](#).



The lectures by **Freeman Dyson**, **Doug Osheroff**, and **Rocky Kolb** were part of the Centennial Speakers Series. This celebration of the UCD centennial year was made possible by donations from faculty, and by funds from the department and the dean's office. Centennial Speakers also gave more technical presentations and were in-residence for two weeks each, providing ample opportunity for informal interaction with students and faculty. Nobel laureate **David Gross** lectured on "The Coming Revolution in Fundamental Physics." The event was jointly sponsored by our [High Energy Frontier Theory Initiative](#) (HEFTI) and our department.



The film screening was of a special director's cut of [The Atom Smashers](#), a documentary featuring UC Davis faculty and researchers, John Conway, Robin Erbacher and



Richard Breedon. John and Robin were present at the viewing along with directors Clayton Brown and Monica Long Ross.

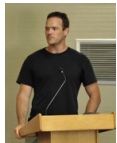
Read more information on the directors [here](#).

Prizes and Awards

Undergraduate Students

Helen Craig won the campus-wide Chancellor's Award for Excellence in Undergraduate Research, together with Michael Dean (Economics). Helen's advisor, Richard Scalettar, was recognized for his superb mentoring. The department's \$1500 Saxon Patten Prize also went to Ms. Craig.

Helen Craig, Daniel Membreno, Matthew Klint and Nasim Eibagi (from left to right in photo below) won Department Citations.



Matthew Klint

Matthew Klint won the Outstanding Senior Award. The award criteria are: excellent academic achievement, outstanding leadership activities, and embodying the vision of UC Davis's Principles of Community.

Amara Miller and Max Padgett were elected to the Phi Beta Kappa Honor Society.



George Suarez

And in the 'better-late-to-announce-it-than-never' category, George Suarez won the 2007 3D Printing Challenge award, sponsored by the Dimension 3D Printing Group. [Check out this video](#) featuring George, Lecturer Randy Harris and the UCD campus.

Graduate Students

Peter Greene 2009 Graduate Studies Summer GSR Award

Rajesh Kommu 2008-2009 Graduate Studies Travel Award

Chun-Yen Lin 2008-2009 Graduate Studies Travel Award

Jacqueline Hodge 2009 GSA Travel Award

Brian Lemaux 2008-2009 Graduate Studies Travel Award

Randy Nelson Livermore Scholars Program recipient

Michael Shaughnessy Livermore Scholars Program recipient

Faculty

Steve Carlip and John Conway were elected Fellows of the American Physical Society. Noted in the awards were Professor Conway's outstanding contributions in the search for the Higgs boson as well as physics beyond the Standard Model and Professor Carlip's studies of black hole physics as well as gravity in 2+1 dimensions.

Shirley Chiang was elected as a Fellow of the American Association for the Advancement of Science. The society cited Professor Chiang for "innovative and incisive use of scanning probe techniques for the study of metal surfaces." [Click here](#) for more on the award.

John Rundle was elected as a Fellow of the American Geophysical Union, an honor bestowed on only a very small fraction of AGU members each year.

Lawrence Coleman was elected as a Senior Fellow of the National Association of State Universities and Land Grant Colleges.

David Pines has been awarded an Honorary Doctor of Science Degree by the University of St. Andrews, Scotland. The honor is bestowed "in recognition of his contributions to physics and of his work at the interfaces between science, international relations, and policy."

David Pines has also won the 2009 John Bardeen Prize for Superconductivity Theory for his ground-breaking work in elucidating the phonon-mediated pairing of electrons in conventional superconductors and superfluidity in nuclear matter.

Charles Fadley has been elected a foreign member of The Royal Society of Sciences at Uppsala, Sweden, in its Class for Physics and Mathematics. The Royal Society of Sciences at Uppsala is the oldest learned society in Sweden, founded in 1710.

UC Davis Chancellor's Award for Excellence in Undergraduate Research, faculty mentor award goes to Richard Scalettar.

Sergey Savrasov was selected as a UC Davis 2008-2009 Chancellor's Fellow, one of five across the campus. The program honors the achievements of outstanding faculty members early in their careers. This was the third time in four years that a physics faculty member was chosen.

Ching Fong was elected as a member of the Chinese Academy of Sciences, won an Outstanding Referee Award from the American Physical Society and was selected as an Overseas Scholar by the National Academy of Science of China.

Finally, our fearless chair, Warren Pickett was named the Watkins Visiting Professor by Wichita State University. During the visit to his alma mater he presented both a public lecture and a research lecture.



David Pines won two prestigious awards in the last year.

Alumni Seminar Series

Think back to when you were a physics major at UCD or perhaps elsewhere. What did you know about opportunities for making a living? Did you ever ask yourself what people with physics degrees (at any level) go on and do out in the world? I, for one, was totally clueless.



In order to give our students (and myself!) a clue we created the alumni speakers seminar series. Aimed primarily at our undergraduates, it complemented and eventually merged with the occasional seminars organized by Professor Steve Carlip for our graduate students. Over sixty of our alumni responded to our call (mailed to those within driving distance) to come speak about their careers. Traveling to UCD at their own expense, they have provided invaluable advice and perspective to our students, and opened their eyes to the very wide variety of career paths open to someone

with a physics degree from UCD.



We have held the seminar series as a one-unit course every spring quarter starting in 2007. Speakers to date are:

Greg Spooner (BS 1985, PhD 1992) Director of Advanced Development for Cutera, Inc.

Richard Knowles (BS 1970) Assistant Vice President for Application Systems, Federal Home Loan Bank of San Francisco

Brian Fies (BA 1983) Self-employed science writer

Marc Mosko (BS 1989) Research Staff Member, Palo Alto Research Center

Greg Chabrier (BS 1976) President, Bybee Power

Nelson Pass (BS 1973) Founder, Pass Laboratories

Russell Read, Chief Investment Officer, CalPERS

Michael Lazich (BS 1985) Senior Product Manager, Serus

Karl Lichtenberger (BS 1985) Process Engineering Manager, Vishay Siliconix

Julien Svoboda, Medical Physicist, Kaiser

John Rominger (MA 1975) Division Director of Engineering, L-3 Communications Electron Devices

Randy Smith (BS 1975) Principal Investigator, Sun Microsystems

Peter Smietana (PhD 1979) President and Founder, BioXing

Eric Colby (MS 1991) Staff Physicist, Stanford Linear Accelerator Center

Heather Logan (BS 1993) Assistant Professor, Carleton University

Mike Shaw (BS 1991) Staff Physicist, Lawrence Livermore National Lab

Tom Cahill, Emeritus Professor of Applied Physics at UCD, Founder and Head of DELTA Group

David Butler (BS 1971) President, Limit Point Systems, Inc.

Alan Wong (PhD 1996) Staff Technologist, Intel

Christopher Couper (BA 1980, MS 1982) Distinguished Engineer, IBM

Peter Kazaks (PhD 1968) Retired Professor and former Chair of Division of Natural Sciences, New College of Florida

Trevor Willey (PhD 2004) Staff Scientist, Lawrence Livermore National Laboratory

December Martin (BS 2000) Preclinical Associate, PDL Biopharma

Oleg Steciw (BS 1991) Senior Marketing Manager, Intersil Corporation

As you can see from the list, our students and I have now been exposed to quite a variety of career paths. It was delightful for me to hear all of these stories, and encouraging to hear repeatedly of the value our alumni associate with their training in physics. If you would like to be one of our speakers, please [register here](#). Thanks to all those who have already registered. We may be inviting you soon for Spring 2010.

We are very grateful for the thoughtful and articulate contributions of our alumni, and other friends of the physics department, who make this program possible. I am also very grateful for the enthusiastic support provided by physics department staff member **Georgie Tolle**, on whose organizational skills we rely heavily.

--Professor Lloyd Knox

Alumni News and Profiles

In this issue we include a brief profile of the professional activities of one of our alumni. We expect this to become a regular feature of our newsletters. Let us know if you want more alumni news in the newsletter. And please send us your news! Write to us at enews@physics.ucdavis.edu.

You can also connect with fellow alumni (as well as current students and staff) via our department's [Facebook page](#). Simply join [Facebook](#) and then search for [UC Davis Physics](#).

Alumna Profile:



Ágústa Loftsdóttir worked with **Professor John Byrd** at the Advanced Light Source and graduated with a PhD in 2005. She returned to her native Iceland where for the past three years she has been a project manager at the National Energy Authority in Iceland. Ágústa leads the alternative fuels group which serves as an advisory body to the government on alternative fuels, makes policy recommendations and is the hub of information and knowledge on the subject. She also leads the fuel use forecasting group, a collaboration between public and private stakeholders in the fuel industry that regularly publishes reports on fuel use and models trends in Iceland. Ágústa lectures at the University of Akureyri on physics and renewable energy, as well as the School for Renewable Energy Science. She serves on several international research

and consulting committees, as well as Icelandic ones, dealing with renewables, alternative fuels and ways to mitigate carbon dioxide emissions.

Physics Department Launches Fundraising Effort



The Department of Physics has grown and changed tremendously in recent years; 25 of our 46 faculty members have been hired in the last decade. Indeed, our cosmology group, now one of the leading centers in the world for cosmology, has grown in the ten years from just one member to nine. According to US News & World Report our graduate program moved from 44th to 29th between 2002 and 2008, and our reputation and impact continue to grow.

Looking toward the future, we now have an expanded vision of what our department can hope to become. We want to further improve our ability to attract the highest quality people to our institution, as faculty members, postdoctoral scholars and graduate students and thus achieve even higher levels of scientific productivity and leadership. We want to bring our instruction to a higher level of excellence. We want to make our physical environment one conducive to the sharing of ideas, thereby facilitating new discoveries. We aspire to become one of the elite physics departments of the world.

To help us reach these goals we are launching a private fundraising effort. Donations will support our core activities in ways that state and federal funds cannot, and allow us to compete with the very best departments, all of which can count on private support to maintain and enhance their programs.

We have identified the following items for which we are seeking private donations:

1. Named chaired professorships
2. Postdoctoral prize fellowships
3. Graduate Fellowships
4. Instructional laboratory upgrades
5. Atrium renovation
6. Research lab upgrades

If you are interested in helping us reach our goals, please see our new [Giving to Physics](#) page. You may also wish to contact Department of Physics Chairman Warren Pickett at (530) 752-5989 or Director of Development for the College of Letters and Sciences Shari Kawelo via email at sekawelo@ucdavis.edu or by phone at (530) 754-2225.