A Celebration of Faculty Achievement

Fall 2013
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The true greatness of a university can be measured not by the beauty of its campus, the breadth of the programs it offers, or the success of its athletic teams, important as all these are. Above all else, the greatness of a university rests squarely on the talents and accomplishments of its faculty. At the University of Colorado Boulder, we are blessed with faculty members who engage in groundbreaking research, scholarship, and creative work; who bring the fruits of their inquiries into the classroom to provide our students with an education of the highest quality; and who contribute in numerous other ways to shape the character and future not only of the state and region but, indeed, of the world. It is not much of an overstatement to say that the university is its faculty.

Every year the accomplishments of our faculty grow in number and significance, a fact reflected in the numerous awards and other recognitions our faculty receive. Some are recognized by their campus colleagues for their distinguished contributions in teaching, research, or service. Others have received national and international recognition, including some of the most prestigious awards scholars can receive.

To list all the accolades earned by our faculty would require a substantial volume. This publication can present only a representative sampling. Highlighted on these pages are those faculty members who have earned tenure or promotion to the rank of professor. Other faculty members profiled in these pages have received fellowships or academic prizes, have been designated as CU-Boulder Distinguished Faculty, or have become members of prestigious academic societies. These faculty members, together with the many distinguished faculty members not included here, contribute to realizing the university’s vision of excellence in teaching, learning, discovery, and creativity—all in the service of a brighter future for Colorado and the world.

Russell Moore
Provost and Executive Vice Chancellor for Academic Affairs
The University of Colorado awards the title of Distinguished Professor to recognize the outstanding contributions of faculty members to their academic disciplines. Faculty members who are designated as Distinguished Professor are leaders in their respective fields as demonstrated by national or international recognition and/or significant public service achievements.

Christopher Bowman  
Chemical and Biological Engineering

Since joining CU-Boulder in 1992, Professor Bowman has distinguished himself as an award-winning researcher, teacher, and department leader. Professor Bowman’s research focuses on the formation and properties of cross-linked polymeric materials, especially when they are formed through photo-polymerization reactions. His research has applications in a variety of fields, including microfluidic devices, liquid crystal displays, and nanotechnology. Particularly noteworthy is Professor Bowman’s development of new biomaterials for such purposes as dental restoration. Among other awards, Professor Bowman has received the award for Outstanding Progress in Chemical Engineering and the Charles M.A. Stine Award, both from the American Institute of Chemical Engineering, and the R.H. Wilhelm Award from the American Institute of Chemical Engineers. His teaching has been honored with the Residence Academic Life Teaching Award, the John and Mercedes Peebles Teaching Innovation Award, and the Curtis W. McGraw Award from the American Society of Engineering Education.

Professor Bowman served as chair of his department from 2003–07 and 2011–12 and as the Director for the Materials Science and Engineering Program since 2010. He currently holds the James and Catherine Patten Endowed Chair of Chemical and Biological Engineering.

James T. Hynes  
Chemistry and Biochemistry

A theoretical chemist, Professor Hynes has made significant contributions to the understanding of chemical reaction rates and mechanisms and vibrational dynamics in solution. His research has wide applications, including in such areas as understanding the mechanism of stratospheric ozone depletion, the catalyzing process involved in water splitting (a key component in solar energy conversion), and the mechanism for employing anti-cancer drugs at the level of DNA.

Professor Hynes has received numerous prestigious awards for his research. In 2011 he was elected to the National Academy of Sciences, whose alumni include Albert Einstein and Thomas Edison. He was also inducted into the American Academy of Arts and Sciences in 2008. In 2004, Professor Hynes was awarded the most prestigious award in his field, the Hirschfelder Prize in Theoretical Chemistry. In 2005 he received the American Chemical Society’s Joel Henry Hildebrand Award in the Theoretical and Experimental Chemistry of Liquids. The significance of Professor Hynes’ research is reflected in the fact that he has delivered hundreds of invited lectures at national and global conferences since joining the CU-Boulder faculty in 1971.
Pierre Schlag
Law

An expert in the fields of constitutional theory, legal interpretation, economics and the law, tort law, legal philosophy, and the aesthetics of law, Professor Schlag teaches seminars on constitutional law, jurisprudence, ethics, and contemporary legal theory. He has published numerous articles in the most prestigious journals in his field, including Harvard Law Review, Stanford Law Review, Michigan Law Review, and UCLA Law Review. He served as Associate Dean for Research from 2005–2007. Currently, he is the Byron R. White Professor of Law and Chair of the Byron R. White Center for the Study of American Constitutional Law.

Professor Schlag is the co-author of a handbook on legal argument, Tactics of Legal Reasoning. In his two single-author books, The Enchantment of Reason and Laying Down the Law, together with Against the Law, co-authored with two of his law school colleagues, Professor Schlag mounts a sustained challenge to some of the basic intellectual assumptions of the legal profession, including the notion that the law is a rational system. His provocative work—which has been translated into six languages—has earned Professor Schlag a reputation as "the great iconoclast of the American legal academy."
President’s Teaching Scholars at CU-Boulder

This program, established in 1989 as a University of Colorado presidential initiative, honors faculty members who have excelled in teaching and scholarship, creative work, or research, and who promote teaching excellence throughout the university. President’s Teaching Scholars are chosen from CU’s four campuses not only for skill in their own classroom but also for their promise of improving education and enlarging its possibilities across the university. They serve as ambassadors for teaching as well as for research focused on improving teaching and learning.

Scot Douglass
Associate Professor, Engineering, Herbst Program of Humanities

During his tenure at CU-Boulder, Professor Douglass has distinguished himself through his commitment to teaching and scholarly excellence. His research explores hermeneutics, or how texts mean what they mean, and the relationships among literature, philosophy, theology, and psychology in 19th- and 20th-century literature. His most recent book, *Theology of the Gap: Cappadocian Language Theory and the Trinitarian Controversy*, relates the language theories of the Cappadocian Fathers to the contemporary philosophical theories of Heidegger, Derrida, and Ricoeur.

In 2003 Professor Douglas received the Boulder Faculty Assembly Excellence in Teaching Award, and in 2009 he won the Dean’s Award for Outstanding Teaching. He has also received wide recognition for his work in the Herbst Program of Humanities, where he has taught since 1999. He is currently director of the Engineering Honors Program as well as director of the Andrews Hall Residential Program. Most recently, he worked alongside a team of undergraduate engineering students to build a grand orrery, or working model of the solar system, which was unveiled during a ceremony in February 2013.

Elspeth Dusinberre
Associate Professor, Classics

Since joining the Classics Department at CU-Boulder in 2000, Professor Dusinberre has written a dozen scholarly articles as well as two full-length books, * Gordian Seals and Sealings: Individual and Society* and *Aspects of Empire in Achaemenid Sardis*. Her research interests include the region of Anatolia, or Asia Minor, especially the Achaemenid Empire and its influence on local social structures and other cultures. Currently she is at work studying seal impressions on the Aramaic tablets of the Persepolis Fortification Archive, which date to ca. 500 BCE. She has archaeological field experience in Turkey, Greece, and Egypt, and she has facilitated a number of exhibits at the CU Art Museum.

In 2005 Dusinberre was awarded the Boulder Faculty Assembly Award for Excellence in Teaching. She has also been distinguished with the “Best Should Teach” Award, an Outstanding Faculty Graduate Advisor Award, three Residence Life Academic Teaching Awards, the CU-LEAD Alliance Faculty Appreciation Award, and the Chancellor’s Faculty Recognition Award, which recognizes faculty who have had a positive impact on their students’ lives.
Hazel Barnes Prize

The $20,000 Hazel Barnes Prize is the most prestigious honor accorded to a faculty member by the university and recognizes the enriching relationship between teaching and research. It was established in 1991 by former Chancellor James Corbridge in honor of CU-Boulder philosophy Professor Emerita Hazel Barnes, who taught at CU-Boulder from 1943 to 1986 and was noted for her interpretations of the works of French philosopher Jean-Paul Sartre. Nominees are tenured faculty members who not only are outstanding teachers but also have distinguished records in research and scholarship.

Kristi Anseth
Distinguished Professor, Chemical and Biological Engineering

Professor Anseth completed her PhD at CU-Boulder in 1994 and joined the faculty in 1996. Since then she has built a distinguished career as a researcher and teacher. Professor Anseth’s research focuses on the development of new biomaterials, including those that have medical applications. Her work has led to advances and improvements in the treatment of dysfunctional heart valves and human cartilage, shattered bones, diseased brain tissue, and diabetes. The importance of her work to the treatment of injury and disease is reflected in the fact that she is the first engineer to be named as a Howard Hughes Medical Institute Investigator.

Among her many awards, Professor Anseth was elected to the American Association for the Advancement of Science in 2006 and both the National Academy of Engineering and the Institute of Medicine in 2009. Professor Anseth is also an outstanding teacher and mentor. She received the Distinguished Engineering Alumni Award for Education in 2008 as well as the Dreyfus Teacher-Scholar Award and the Boulder Faculty Assembly Teaching Excellence Award, both in 2000. She has involved more than 100 undergraduates in her laboratory work and mentored an impressive 34 doctoral students. (See related story on page 30.)
Robert Stearns Award

The Stearns Award was initiated in 1953, the year of the resignation of Robert L. Stearns (A&S ’14) who as the sixth president of the university had presided over CU since 1939. Given by the CU-Boulder Alumni Association, the award recognizes members of the faculty and staff for extraordinary achievement or service in any one or combination of the following areas: teaching, service to the university, work with students, research, or off-campus service.

Daniel Sher
Professor, Music

Professor Sher joined CU-Boulder as Dean of the College of Music in 1993, serving in that role for a remarkable twenty years. During his tenure, Dean Sher led the effort to add a number of new graduate programs, including degrees in jazz studies at multiple levels; launched the one-of-a-kind Entrepreneurship Center for Music; developed partnerships with local performers and music communities; increased the college’s endowment; and established the college’s first two endowed faculty chairs. He also served as president of the National Association of Schools of Music, a reflection of his reputation as a leader in his field. In addition to being a gifted administrator, Professor Sher is an accomplished pianist and chamber musician, having performed at concerts and recitals across the U.S., Europe, Mexico, and Central America, including a recital at the Lincoln Center in New York City.

Following his retirement as the Dean of the College, Professor Sher will continue as a professor in the college. Chancellor Philip P. DiStefano commented that Professor Sher “will bring the same energy as a professor that he does as dean and I am thrilled he will remain on the faculty.”

Distinguished Research Lectureship

The Distinguished Research Lectureship is among the highest honors bestowed by the faculty upon a faculty member at CU-Boulder. It honors a tenured faculty member widely recognized for a distinguished body of academic or creative achievement as well as contributions to the educational and service missions of CU-Boulder. Each awardee receives an honorarium and presents a lecture on his or her research to the wider university community. More than 100 CU-Boulder faculty members have been selected for this honor over the years.

Brian Toon
Professor, Atmospheric and Oceanic Sciences; Laboratory for Atmospheric and Space Physics

The author of more than 300 research papers, Professor Toon is recognized as one of the most influential researchers in the geosciences. His research focuses on radiative transfer, aerosol and cloud physics, atmospheric chemistry, and parallels between the Earth and planets. His early work (with the late Carl Sagan) contributed to the reduction of nuclear weapons by demonstrating the catastrophic environmental impact of nuclear war. As a NASA scientist and more recently at CU-Boulder, Professor Toon has conceived, developed, and led numerous field and satellite missions that have dramatically increased our knowledge of volcanic clouds in the stratosphere, ozone loss, the effects of aircraft on the atmosphere, and the Earth’s climate system.

Professor Toon was the founding Chair of the Department of Atmospheric and Oceanic Sciences, a position he held from 2005–2012. He is a fellow of the American Geophysical Union, the American Meteorological Society, and the California Academy of Sciences. He has been awarded the ISI Thomson Scientific Highly Cited Researchers Award, the Robert L. Stearns Award, the NASA Medal for Exceptional Scientific Achievement, and the American Geophysical Union’s Roger Revelle Medal.
College of Arts and Sciences Professor of Distinction

The honorary title Professor of Distinction is reserved for scholars and artists of national and international distinction who are recognized by their peers as teachers and colleagues of exceptional talent. Appointments to this title are made from those holding the rank of professor in the College of Arts and Sciences.

**Barbara Demmig-Adams**
*Professor, Ecology and Evolutionary Biology*

Professor Demmig-Adams’ research focuses on photosynthesis and photoprotection of plants in a wide variety of environmental conditions. She studies the ecology, physiology, and anatomy of plants in order to determine how plant mechanisms and genes help plants adapt and survive in extreme environmental conditions. She is a previous recipient of the prestigious Packard Fellowship in Science and Engineering, and with that support she and her research team discovered a new process involving carotenoids by which plants and trees protect themselves from the damaging effects of intense sunlight.

In addition to her exceptional scholarly record, Professor Demmig-Adams is a distinguished teacher who serves as the Director of the Ecology and Environmental Biology Honors Program. She also sponsors undergraduate research in human diet-gene interactions and has been honored with the Boulder Faculty Assembly Excellence in Teaching award. In 2008, she was named as a CU-LEAD Scholar, which is awarded to professors who make a significant and positive impact on the success of their students at CU-Boulder.

Assistant Professor Nikolaus Correll, Department of Computer Science, has developed a swarm of pingpong ball-sized robots that work in tandem to solve tasks.
CU-Boulder Faculty Awards

Kayden Book Award

Named for Eugene M. Kayden, a 1912 CU-Boulder alumnus who went on to a distinguished career as a scholar and teacher of economics, the Kayden Book Award is open to faculty members in the humanities. Awardees receive a research stipend, and their department receives a grant to organize a one-day author-meets-critics symposium on their award-winning book.

Sue Zemka
Professor, English

In *Time and the Moment in Victorian Literature and Society*, Professor Zemka examines the rhetorical device of the moment in British fiction from the 19th century. According to Zemka, sudden changes and revelations have always carried a special significance. During the Victorian period in particular, she argues, rapid industrialization and developments in time-keeping technology led to greater significance being attached to individual moments. Zemka’s larger argument, however, is that the device of the moment actually obscures a thread of 19th- and 20th-century literature that criticized the dominant theory about moments and their significance. Professor Zemka’s book promises to reshape literary criticism on Victorian literature and time as well as critical theories of temporality. Her book recently received the Pope Woodard Award for the best book in the last three years by a member of the English faculty.

Professor Zemka is also the author of *Victorian Testaments: The Bible, Christology, and Literary Authority in Early-Nineteenth-Century British Culture*. Since joining the CU-Boulder faculty in 1989, she has received the Donald Gray Prize for the best essay in Victorian studies, the Woodrow Wilson Innovation Award, and an American Philosophical Society Fellowship.

Kayden Book Award—Honorable Mention

Nan Goodman
Professor, English

*Banished: Common Law and the Rhetoric of Social Exclusion in Early New England*

CU-Boulder Faculty Awards

Provost’s Faculty Achievement Awards

These annual awards are presented to selected faculty members who have offered recent significant publications or creative contributions in their academic fields. Awardees receive a research grant and a plaque recognizing their achievement.

Pre-Tenure

William Boyd, Law
Victoria Hand, Education
Arthi Jayaraman, Chemical and Biological Engineering
Christina Jennings, Music
Celeste Montoya, Women and Gender Studies Program
Wei Zhang, Chemistry and Biochemistry

Tenured

Kristen Carpenter, Law
Xinzhou Chu, Aerospace Engineering; Cooperative Institute for Research in Environmental Sciences
Elizabeth Dutro, Education
Bradley Goode, Music
James William Medlin, Chemical and Biological Engineering
Kenneth Wright, Integrative Physiology

Daniel Silver, associate professor of clarinet, conducts a woodwind class.
Boulder Faculty Assembly Awards

Boulder Faculty Assembly Excellence in Teaching

Christine Hrenya
Professor, Chemical and Biological Engineering

Professor Hrenya is widely regarded by her colleagues and her students as a teacher who can make even the most challenging subject matter accessible and engaging. Drawing on fifteen years of teaching experience, Professor Hrenya uses innovative teaching methods to make her classes interactive and student-centered. One observer of her classroom noted that she moved skillfully among her lecture, printed lecture notes, small-group work, and other student activities. Students frequently describe her classes as “fun”—including those that are scheduled early in the morning or those that address complicated topics such as upper-level fluid dynamics.

In addition to her commitment to excellence in her own classroom, Professor Hrenya has also devoted considerable time to improving pedagogy across the field of chemical engineering. She has facilitated a workshop solely on the importance of pedagogy in her field and presented scholarly talks on education-centered issues in chemical engineering. Professor Hrenya’s dedication to teaching and scholarship on pedagogy makes her an asset to her students, her department, and her discipline as a whole.

Daphne Leong
Associate Professor, Music

An accomplished pianist and chamber musician, Professor Leong is an associate professor of Music Theory and Chair of the Music Theory and Composition Department. Her teaching style has been described by a colleague as “engaging and challenging,” and one classroom observer noted that witnessing Professor Leong’s class was like watching a movie “about a class full of geniuses and their inspiring mentor.”

The same observer also described the “marvelous rapport” Professor Leong has with her students, stating that students were on the “edges of their seats” and eager to ask and answer questions. Professor Leong’s teaching style is also quite dynamic: during a single class she utilized a stereo system, a piano, an overhead, the chalkboard, and a lectern, all while moving around the classroom space in order to best engage her students. This dynamism explains why Professor Leong is so inspiring to her students and her colleagues.

Dragan Maksimovic
Professor, Electrical, Computer, and Energy Engineering

A member of the CU-Boulder faculty since 1992, Professor Maksimovic has consistently demonstrated his dedication to teaching excellence. He has been awarded the Bruce Holland Excellence in Teaching Award twice (2004 and 2011) and has also worked to develop two professional certificates in Electrical, Computer, and Energy Engineering for both degree-seeking students and working professionals. He collaborated on a textbook, titled Fundamentals of Power Electronics, which is widely used in his field, and he continues to reinvent and develop new courses within his department.

One of Professor Maksimovic’s colleagues described his student evaluations as “stellar.” An observer of his class noted how he moved adroitly among slides, discussion, and the blackboard. The same observer commented that not only was Professor Maksimovic attentive to his students and their questions before class, but he also explained the complex material carefully and thoroughly. His care and diligence in teaching are no doubt why an impressive number of graduate students seek out Professor Maksimovic as a mentor. To date he has advised twenty-four PhD dissertations as well as twelve MS theses.

Gregory Tucker
Professor, Geological Sciences

After gaining teaching experience at both Oxford University and MIT, Professor Tucker joined the Department of Geological Sciences in 2004. Since then, he has garnered the respect of his colleagues for his teaching abilities and has also served as an advisor for a number of postdoctoral, doctoral, and master’s students. In the classroom, Professor Tucker demonstrates a passion for his subject matter that enlivens even the most difficult or dry of topics.

One observer of his classroom noted that, although it was a large lecture class, Professor Tucker “did everything possible to make the class as intimate as possible.” He walked the aisles of the large lecture hall and queried and involved the students in his presentation. Professor Tucker made the material relevant by referencing geological features in the Boulder area and also by drawing on his own extensive and accomplished fieldwork. Professor Tucker’s impressive research record, which recently garnered him the Ralph Alger Bagnold Medal from the European Geosciences Union, clearly complements his already high standard of teaching excellence.
John P. Cumalat  
Professor, Physics

John Cumalat joined the Department of Physics in 1981. In 1996 he was named chair of Physics, serving in that role for a dozen years. Under his leadership, the Department of Physics blossomed as one of the top programs in the country and established an international reputation for its contributions to the field. Professor Cumalat oversaw the hiring and development of more than a third of the present faculty members, many of whom have become world-class researchers. Professor Cumalat’s leadership of and advocacy for his faculty contributed to extraordinary recognition: Physics faculty and staff won more than 150 awards, including three Nobel Prizes, during his tenure.

Beyond the department, Professor Cumalat has lent his experience and expertise to numerous important campus-wide initiatives, including service on the steering committee for the Flagship 2030 strategic planning process. He currently serves as chair of the Department of Religious Studies.

In addition to being a model campus citizen, Professor Cumalat is a highly effective teacher who has also maintained a high level of scholarly excellence. A world leader in high-energy physics, Professor Cumalat was named a fellow of the American Physical Society in 1992.

Janet deGrazia  
Senior Instructor, Chemical and Biological Engineering

During her tenure in the Department of Chemical and Biological Engineering at CU-Boulder, Professor deGrazia has earned a reputation among her colleagues for her exceptional service record. Professor deGrazia has served as a leader on the Honor Council of the College of Engineering and Applied Science, and within her department she is known for her efforts to increase service work and raise awareness of its value. Professor deGrazia has also served on the Campus Ethics Committee and the Prehealth Advisory Committee. In this latter role, she worked to assist students seeking to enter dental or medical school. She has also played a similar role in her home department by facilitating outreach activities and encouraging students to pursue degrees in engineering.

Professor deGrazia’s service work has not gone unnoticed. Not only was she deemed a “Professor Who Makes a Difference” by the Department of Mechanical Engineering in 2000, but she was also recently awarded the Faculty Mentor Award by the Department of Chemical and Biological Engineering.

Hillary Potter  
Associate Professor, Sociology

Since joining the faculty of the Department of Sociology in 2005, Professor Potter has distinguished herself with her service to her home department as well as at the state and national levels. At the state level, Dr. Potter has served as a member of the Board of the Denver Civil Service Commission. Nationally, she has served as the elected Chair of the Division on People of Color and Crime for the American Society of Criminology. The ASC is one of the top two US professional organizations for criminologists, and the executive director of that organization notes that Professor Potter is known for “her diligence, for her leadership, and as someone who is committed to the growth and development of our field in word and deed.”

On the CU-Boulder campus, Dr. Potter has worked to increase the quality of the Sociology Department’s internship program, and she also formed an undergraduate club for criminology students. Professor Potter has worked extensively as a mentor for student-athletes, focusing especially on issues of alcohol consumption and sexual relationships.

Eric Stade  
Professor, Mathematics

Professor Stade joined the Department of Mathematics in 1990 after completing his PhD at Columbia University. Since that time, he has demonstrated extraordinary commitment to service in a variety of roles within the university. He served two terms as chair of the Department of Mathematics before becoming director of the Libby Residential Academic Program. He also serves as co-director of the i-STEM program. This program, funded by the National Science Foundation, aims to integrate science, technology, engineering, and mathematics education programs into the curriculum.

Especially noteworthy is Professor Stade’s leadership role in establishing the Learning Assistants program, which encourages the most gifted undergraduates in mathematics to act as tutors or mentors in lower-division courses. According to one colleague, this program has dramatically increased the number of mathematics students who enroll in teacher certification programs. Not only does this work help meet the demand for more K-12 math teachers in Colorado, but it has also contributed to a national movement that seeks to improve the quality of mathematics teacher preparation.
Boulder Faculty Assembly Excellence in Research, Scholarly, and Creative Work

Carol Cleland  
Professor, Philosophy

Professor Cleland’s research is noteworthy for its contributions to both philosophy and science. Her earliest work, on the concept of computability, is widely recognized as the first to challenge the Church-Turing thesis, which proposed that a function is computable only if an abstract computing device, or Turing machine, computes it. Because contemporary digital computers are essentially Turing machines, Professor Cleland’s groundbreaking critique of the Church-Turing theory continues to be widely cited and to have repercussions in the fields of philosophy, logic, and computer science.

More recently, Professor Cleland’s research has contributed significantly to the philosophy of biology. Working in tandem with astrobiologists at CU-Boulder, she has argued that current criteria used to define the concept of life are misguided, potentially excluding other forms of life on earth and throughout the universe. Professor Cleland has the distinction of being the only philosopher funded by NASA, and her theory of a “shadow biosphere” has strongly reshaped how scientists and philosophers understand what constitutes life.

Noah Fierer  
Associate Professor, Ecology and Evolutionary Biology

The author of more than 100 papers and book chapters, Professor Fierer has established himself as one of the world’s leading experts in microbial ecology. His research seeks to understand the biogeography of soil and airborne microbial communities. Specifically, he examines how pollution, farming practices, and the addition of fertilizers affect the microbial communities in soil. His work has important implications for the fields of ecology, evolutionary biology, and climate change. Professor Fierer’s work also explores the microbial composition of the human body and man-made environments, and he is a leader in using contemporary genomic techniques to understand microbial communities.

Not surprisingly, Professor Fierer’s efforts have garnered considerable attention in his field. He has served as the principal investigator on projects that have received over seven million dollars in grant support. He was recently elected to the Faculty of 1000, in addition to receiving the JBS Haldane prize by the British Ecological Society and the National Science Foundation’s CAREER award.

Kristine Larson  
Professor, Aerospace Engineering Sciences

Since joining CU-Boulder in 1990, Professor Larson has redefined the engineering and scientific uses of the Global Positioning System, or GPS. As a specialist in new GPS technologies, Professor Larson has developed ways for scientists to use high-precision GPS to better understand seismology, the motion of ice sheets in Greenland, crustal motion, time transfer, soil moisture, snow depth, and vegetation. Professor Larson’s research, in particular her cutting-edge GPS analysis techniques, allowed her to provide source studies of the earthquakes in San Simeon, California, and Tokachi-Oki, Japan. According to one colleague, Professor Larson has “pushed the boundaries of what people thought could be done with GPS.”

A leading scholar in her field, Professor Larson has written over 80 refereed publications in prestigious journals such as Science and Nature. She received the American Geophysical Union’s prestigious Geodesy Section Award in 2005 “in recognition of major advances in geodesy.” In 2011, Professor Larson was selected as a fellow of the American Geophysical Union.

Karl Linden  
Professor, Civil, Environmental, and Architectural Engineering

Professor Linden is widely regarded as one of the nation’s leading experts on water quality and purification. His work on the use of ultraviolet irradiation to disinfect drinking water continues to have a profound impact on the field of environmental engineering. Through his own dedicated efforts and the program Engineers without Borders, Professor Linden’s work has also aided sanitation efforts in countries like Rwanda and Peru by bringing improved water and sanitation systems to thousands of people in those areas.

In the course of his career, Professor Linden has received nearly twenty million dollars in grant funding for his research, which is currently focused on the use of LEDs, or light-emitting diodes, in ultraviolet disinfection systems. Like his previous research, this work demonstrates Professor Linden’s commitment to both academic excellence and global humanitarianism. This technology will create disinfection systems in areas where the lack of electricity and running water hinders traditional modes of water purification. Professor Linden is a true global citizen as well as an asset to CU-Boulder.
Each year, faculty members at CU-Boulder receive many honors and recognitions from beyond campus. They range from the local to the international and honor the work of faculty in teaching, research, and service. The following are some of the most prestigious awards. They serve as a sample of the much larger list of recognitions garnered by our faculty.

**Howard Hughes Medical Institute**

The Howard Hughes Medical Institute is a science philanthropy whose mission is to advance biomedical research and science education for the benefit of humanity. HHMI empowers exceptional scientists to pursue fundamental questions about living systems.

**Howard Hughes Medical Institute Investigators**

- **Natalie Ahn**, Professor, Chemistry and Biochemistry
- **Kristi Anseth**, Distinguished Professor, Chemical and Biological Engineering
- **Thomas Cech**, Distinguished Professor, Chemistry and Biochemistry
- **Min Han**, Professor, Molecular, Cellular, and Developmental Biology
- **Roy Parker**, Professor, Chemistry and Biochemistry

**Howard Hughes Medical Institute Alumni**

- **Karla Kirkegaard**, Associate Professor, Molecular, Cellular, and Developmental Biology (1990–1996)

**Howard Hughes Medical Institute Early Career Scientists**

- **Joaquin Espinosa**, Associate Professor, Molecular, Cellular, and Developmental Biology
- **Rob Knight**, Professor, Chemistry and Biochemistry

**Society of Howard Hughes Medical Institute Professors**

- **Leslie Leinwand**, Professor, Molecular, Cellular, and Developmental Biology
American Academy of Arts and Sciences

Founded in 1780, the American Academy of Arts and Sciences is an international learned society composed of the world’s leading scientists, scholars, artists, business people, and public leaders.

David Nesbitt
Professor Adjoint, Chemistry and Biochemistry; Professor Adjunct, Physics

Recognized among his peers for his significant contributions to both chemistry and physics, Professor Nesbitt seeks to understand the fundamental dynamics of chemical reactions from both experimental and theoretical perspectives. His particular research interests include laser spectroscopy, kinetics of fundamental molecular systems, intermolecular potentials, laser photofragmentation, and surface molecular dynamics at the quantum level. One of Professor Nesbitt’s current projects involves using a novel combination of near-field scanning optical, atomic force, and scanning tunneling microscopies to achieve laser imaging of nanostructures and biomolecules.

Lauded for his seminal contributions to the fields of both chemistry and physics, Professor Nesbitt has received the American Chemical Society’s Nobel Laureate Signature Award, the Arthur S. Fleming Award for Government Service, the National Institute for Standards and Technology’s Edward Uhler Condon Award, the Alexander von Humboldt Senior Scientist Award, and an Alfred P. Sloan Fellowship. Professor Nesbitt is a fellow of the Royal Society of Chemistry (where he received the Bourke Medal), the American Chemistry Society, and the American Physical Society.

David Wineland
Professor Adjoint, Physics

Dr. Wineland is a global expert in trapped ions, or electrically charged atoms, used in atomic clocks and experimental quantum computing. After joining the National Institute of Standards and Technology (NIST) in 1975, Wineland accomplished the first demonstration of laser cooling. This breakthrough, and related discoveries in trapping atoms, was fundamental to the discovery of the Bose-Einstein condensate. Dr. Wineland’s research has yielded a number of scientific breakthroughs, including the first single-atom quantum logic gate, the first demonstration of entanglement with two and four ions, and the first demonstration of a “quantum logic atomic clock,” which is now the world’s most precise atomic clock.

Since 2000, Dr. Wineland has been a lecturer in the Department of Physics at CU-Boulder, where he leads graduate seminars and mentors graduate students pursuing doctorates in Physics. According to one of those students, Dr. Wineland is a “brilliant and humble scientist” who “was always available” to his students. Dr. Wineland received the 2012 Nobel Prize in Physics along with Serge Haroche. (See related story on page 32.)
Additional Academic Achievements

National Academy of Education
The National Academy of Education advances the highest-quality education research and its use in policy formulation and practice. It consists of up to 150 U.S. members and 25 foreign associates who are elected on the basis of outstanding scholarship or other outstanding contributions to education. Since its establishment, the academy has sponsored a variety of commissions and study panels that have published influential proceedings and reports.

CU-Boulder Academy Members
Active Academy Members
Margaret Eisenhart, Education (2004)
Kris Gutierrez, Education (2010)
Lorrie Shepard, Education (1992)
Carl Wieman, Physics: JILA (2009)

Retired Academy Members
Robert Linn, Education (1990)

National Academy of Engineering
The National Academy of Engineering includes more than 2,000 peer-elected senior professionals in business, academia, and government who are among the world’s most accomplished engineers and who provide leadership and expertise for projects focused on the relationships among engineering, technology, and the quality of life.

CU-Boulder Academy Members
Active Academy Members
Bernard Amadei, Civil, Environmental, and Architectural Engineering (2008)
Kristi Anseth, Chemical and Biological Engineering (2009)
Frank Barnes, Electrical, Computer, and Energy Engineering (2001)
Ross Corotis, Civil, Environmental, and Architectural Engineering (2002)
Michael King, Laboratory for Atmospheric and Space Physics (2003)
Diane McKnight, Civil, Environmental, and Architectural Engineering (2012)
Valerian Tatarskii, Cooperative Institute for Research in Environmental Sciences (1994)

Deceased Academy Members
Steve Clifford, Cooperative Institute for Research in Environmental Sciences (1999)
Max Peters, Chemical and Biological Engineering (1965)
Klaus Timmerhaus, Chemical and Biological Engineering (1975)

Retired Academy Members
Don Hearth, Aerospace Engineering Sciences (1989)
Martin Mikulas, Aerospace Engineering Sciences (1999)
Jacques Pankove, Electrical and Computer Engineering (1986)
Kaspar William, Civil, Environmental, and Architectural Engineering (2004)

Adam Bradley, associate professor of English, teaches an outreach class to students at Montbello High School.
National Academy of Sciences

Founded in 1863 and considered one of the highest honors for an American scientist or engineer, the National Academy of Sciences is a private, nonprofit, self-perpetuating society of distinguished scholars engaged in scientific and engineering research and dedicated to the furtherance of science and technology and to their use for the general welfare.

Kristi S. Anseth
Distinguished Professor, Chemical and Biological Engineering

Professor Anseth is a nationally recognized expert in the development of new biomaterials used for a variety of medical purposes. She drastically reshaped and improved the biomaterials that were previously being used in clinical medicine by developing new kinds of multifunctional macromers that are photopolymerized to form predictable and controllable degradable networks. The practical applications of this groundbreaking work include improvements and advancements in the controlled release of drugs, biomaterials for fracture fixation, DNA delivery for tissue engineering, tissue engineering scaffolds, and photopolymerizable tissue adhesives.

In addition to her position in the Chemical and Biological Engineering Department, Professor Anseth is also an associate professor of surgery at the University of Colorado Anschutz Medical Campus. She was the first engineer to be named as a Howard Hughes Medical Institute Investigator, and she was recently elected to the National Academy of Engineering and the Institute of Medicine. In 2013 she received the Hazel Barnes Prize, the highest honor accorded to a CU-Boulder faculty member. (See related story on page 11.)

Henry Kapteyn
Professor, Physics; JILA

Professor Kapteyn is a nationally recognized expert in the development of novel light sources at short wavelengths and what they reveal about the dynamic processes involved in material and chemical systems. This research, which he has conducted in collaboration with Margaret Murnane, has led to an advanced generation of lasers that allow scientists to produce light pulses of less than ten femtoseconds duration. Professor Kapteyn and his research group invented the first sub-10 femtosecond laser, which has become a crucial tool in science laboratories throughout the world. The implications of Professor Kapteyn’s research are extensive; the work gives scientists the ability to observe individual atoms, thereby providing a stronger understanding of microscopic mechanisms. It also facilitates ultrahigh-resolution imaging of single cells.

Professor Kapteyn has been awarded the Arthur L. Schawlow Prize, the R.W. Wood Prize, the Willis E. Lamb Award for Laser Science and Quantum Optics, and the Ahmed Zewail Award in Ultrafast Science and Technology. He is also a fellow at JILA.

Other CU-Boulder Academy Members

Active Academy Members
- Marvin Caruthers, Chemistry and Biochemistry (1994)
- Thomas R. Cech, Chemistry and Biochemistry (1987)
- Noel Clark, Physics (2007)
- Eric Cornell, Physics; JILA (2000)
- Larry Gold, Molecular, Cellular, and Developmental Biology (1995)
- James T. Hynes, Chemistry and Biochemistry (2011)
- Deborah Jin, Physics; JILA (2005)
- W. Carl Lineberger, Chemistry and Biochemistry; JILA (1985)
- Jane Menken, Sociology; Institute of Behavioral Science (1986)
- Joseph Michl, Chemistry and Biochemistry (1986)
- Margaret Murnane, Physics; JILA (2004)
- Norman Pace, Molecular, Cellular, and Developmental Biology (1991)
- Roy Parker, Chemistry and Biochemistry (2012)
- Margaret Tolbert, Chemistry and Biochemistry; Cooperative Institute for Research in Environmental Sciences (2004)
- John Wahr, Physics; Cooperative Institute for Research in Environmental Sciences (2004)
- Carl Wieman, Physics; JILA (1995)
- David Wineland, Physics (1992)
- Jun Ye, Physics; JILA (2011)

Retired Academy Members
- J. Richard McIntosh, Molecular, Cellular, and Developmental Biology (1999)
- William B. Wood, Molecular, Cellular, and Developmental Biology (1972)

Deceased Academy Members
- Kenneth Boulding, Economics (1975)
- Linda Cordell, Anthropology; University Museum (2005)
- Stanley Cristol, Chemistry and Biochemistry (1972)
- Charles DuPuy, Chemistry and Biochemistry (1999)
- David M. Prescott, Molecular, Cellular, and Developmental Biology (1974)
- Gilbert White, Geography (1973)
Nobel Laureates

The Nobel Prize is an international award given yearly for achievements in physics, chemistry, economics, medicine, literature, and peace. Nomination and selection of winners vary according to the category and prize-awarding institutions.

2012
David Wineland
Physics

Isolated from their surroundings, particles such as atoms, electrons, and photons exhibit bizarre properties—such as being in two places at once—that classical physics cannot explain. Quantum physics was conceived to provide theoretical explanations of these properties, but experimental validation of quantum theory was believed to be impossible because these particles lose their quantum properties when they are observed or when they interact with other particles. Dr. Wineland received the Nobel Prize (along with Serge Haroche) for demonstrating that the seemingly impossible was indeed possible. By trapping electrically charged atoms and controlling and measuring them with light, Dr. Wineland was able to preserve while observing their quantum properties. This breakthrough in the field of quantum optics has led to the development of highly precise clocks that tell time with more than a hundred times greater precision than the cesium clocks that are used today. Perhaps more significant, it holds the promise of enabling the creation of super-fast computers that will transform everyday life in the future.

Dr. Wineland’s distinguished career has led to many other accolades, including the National Medal of Science, the Benjamin Franklin Medal in Physics, and the American Physical Society’s Arthur L. Schawlow Prize in Laser Science. In 2013 he was inducted into the American Academy of Arts and Sciences. (See related story on page 26.)
Additional Academic Achievements

**Guggenheim Fellows**

Guggenheim Fellowships are prestigious grants to a select group of individuals that provide fellows with blocks of time to pursue important scholarly work with as much creative freedom as possible. No special conditions are attached to these fellowships, and fellows may spend their grant funds in any manner they deem necessary to their work. Since 1949 more than 70 CU-Boulder faculty members have been named Guggenheim fellows.

**CU-Boulder Guggenheim Fellows since 1998**

- **Fred Anderson**, History (2001)
- **Thomas Andrews**, History (2011)
- **Albert Chong**, Art and Art History (1998)
- **G. Barney Ellison**, Chemistry and Biochemistry (1999)
- **Barbara Engel**, History (2003)
- **Steven Epstein**, History (1998)
- **Paul W. Kroll**, Asian Languages and Civilizations (2007)
- **Noel Lenski**, Classics (2009)
- **Margaret Tolbert**, Chemistry and Biochemistry (2005)
- **Mark Winey**, Molecular, Cellular, and Developmental Biology (2007)

**MacArthur Fellows**

The MacArthur Foundation accepts yearly nominations in as broad a range of fields and areas of interest as possible to identify and support talented individuals—writers, scientists, artists, social scientists, humanists, teachers—who have shown extraordinary originality and dedication in creative pursuits and a marked capacity for self-direction. The MacArthur Fellows Program awards five-year, unrestricted fellowships, sometimes referred to as “genius grants,” to individuals who show exceptional merit and promise of continued creative work.

**CU-Boulder MacArthur Fellows since 1981**

- **Charles Archambeau**, Physics (1988)
- **David Hawkins**, Philosophy (1981)
- **Patricia Limerick**, History (1995)
- **Margaret Murnane**, Physics; JILA (2000)
- **Norman Pace**, Molecular, Cellular, and Developmental Biology (2001)
**National Medal of Science**

The National Medal of Science was established by the 86th Congress in 1959 as a Presidential Award to be given to individuals “deserving of special recognition by reason of their outstanding contributions to knowledge in the physical, biological, mathematical, or engineering sciences.” In 1980 Congress expanded this recognition to include the social and behavioral sciences. National Medals of Science are awarded by the president of the United States to individuals deserving of special recognition by reason of their outstanding cumulative contributions to knowledge in service to the nation.

**Previous CU-Boulder Medal Winners**

- Marvin Caruthers, Chemistry and Biochemistry (2006)
- Thomas R. Cech, Chemistry (1995)
- Keith Roberts Porter, Biology (1976)
- Gilbert White, Geography (2000)

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**Packard Fellows**

Candidates for a Packard Fellowship must be faculty members in the first three years of their careers who are eligible to serve as principal investigators engaged in research in the natural and physical sciences or engineering. Disciplines include physics, chemistry, mathematics, biology, astronomy, computer science, earth science, ocean science, and all branches of engineering.

**Milos Popovic**  
Assistant Professor, Electrical, Computer, and Energy Engineering

Professor Popovic’s research expertise lies in nanophotonic device concepts and circuit design in applications such as telecommunications, on-chip interconnects, sensing and imaging, energy conversion and control, and classical and quantum computation and information processing. Professor Popovic’s work involves new theoretical concepts as well as the actual design and experimental study of novel devices, concepts, and fabricated proof-of-concept device chips.

With the support of the Packard Fellowship, Professor Popovic will study light-based devices for innovative microchip technology. He will investigate how photons, or light particles, create new physical states when compressed into the nanometer-size dimensions of microchips. Professor Popovic’s research has the potential to result in the development of low-energy circuits and communication technology using quantum mechanics.

Prior to joining the CU faculty in 2010 and becoming the GE/Donnelly Faculty Fellow in Electrical, Computer, and Energy Engineering, Professor Popovic was an independent investigator in the Optics and Quantum Electronics Group at MIT’s Research Laboratory of Electronics.

**CU-Boulder Packard Fellows since 1989**

- Anton Andreev, Physics (1999)
- Kristi Anseth, Chemical and Biological Engineering (1997)
- Elizabeth Bradley, Computer Science (1995)
- Michael Hermele, Physics (2010)
- Pieter Johnson, Ecology and Evolutionary Biology (2008)
- David Jonas, Chemistry and Biochemistry (1998)
- Karla Kirkegaard, Molecular, Cellular, and Developmental Biology (1989)
- John Price, Physics (1990)
- Leo Radzihovsky, Physics (1998)
- Cindy Regal, Physics; JILA (2011)
- Alexis Templeton, Geological Sciences (2001)

Assistant Professor Rebecca Safran, Department of Ecology and Evolutionary Biology, studies the connections between animal behavior and population biology.
Additional Academic Achievements

Fulbright Fellows

The Fulbright program sends 800 U.S. faculty and professionals abroad each year and is intended for candidates who wish to conduct research, teach, or undertake a combination of both at an academic institution of their choice in a host country. Fellows lecture and conduct research in a wide variety of academic and professional fields. CU-Boulder has had more than 100 Fulbright fellows since 1982.

Michele Moses
Professor, Education

How is it that those on either side of affirmative action debates share significant moral ideas yet endorse different policy prescriptions? This central question is the heart of Professor Moses’ research. It brings philosophical, conceptual, and document analysis to bear in investigating the moral disagreement over affirmative action in higher education admission in Brazil and the United States. As a recipient of a Fulbright Specialist program award, Professor Moses was invited to visit Rio de Janeiro to give a series of lectures on her research for the Federal Rural University of Rio de Janeiro in March 2012.

In 2007–08, she received a Fulbright New Century Scholar award. The focus of her work was on Affirmative Action in Brazil and the United States: Understanding the Moral Foundations, Disagreements, and Imperatives.

Professor Moses specializes in philosophy, educational opportunity, and social justice within education policies related to diversity and poverty, such as affirmative action. She was a National Academy of Education/Spencer Foundation Postdoctoral Fellow for 2004–06 and is the author of Embracing Race: Why We Need Race-Conscious Education Policy. She has served as associate dean for Graduate Studies at the School of Education since 2010.

CU-Boulder Fulbright Fellows since 2006

Len Ackland, Journalism and Mass Communication (2009)
Marie Banich, Psychology and Neuroscience (2006)
Bud Coleman, Theatre and Dance (2010)
Herbert Covert, Anthropology; University Museum (2009)
Elizabeth Dunn, Geography; International Affairs (2009)
Claire Farago, Art and Art History (2012)
Jennifer Fitzgerald, Political Science (2008)
Eugene Hayworth, University Libraries (2010)
Keith Kearnes, Mathematics (2011)
John Kineman, Cooperative Institute for Research in Environmental Sciences (2009)
Kim Kreutzer, Office of International Education (2011)
Thea Lindquist, University Libraries (2012)
Robert McNown, Economics (2006)
Keith Molenaar, Civil, Environmental, and Architectural Engineering (2006)
Astrid Ogilvie, Institute of Arctic and Alpine Research (2010)
Cecilia Pang, Theatre and Dance (2010)
Brenda Romero, Music (2011)
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Produced by University Communications, 2013

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