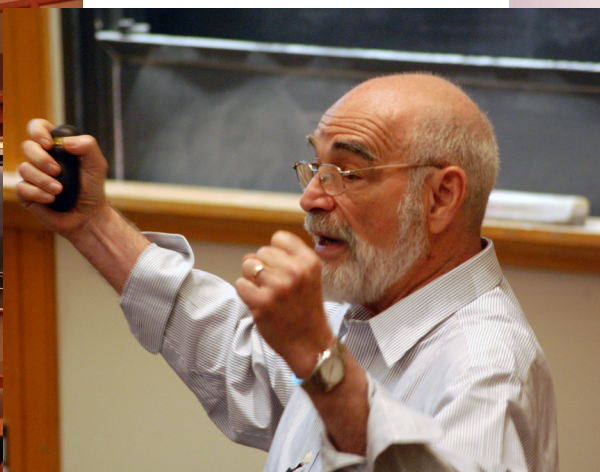




DEDICATION OF THE CHEMISTRY EDUCATION OFFICE



Bruce Berne



Higgins Professor of Chemistry
Columbia University



Images / Liz McGrath

Tuesday, October 22, 2013 was a special day for the Department of Chemistry. It was the day the Chemistry Education Office was named for the late Dean of Science and Professor of Chemistry, Robert J. Silbey. Not by coincidence, it was also the day the first of two A.D. Little Lectures in Physical Chemistry was delivered by theoretical chemist Professor Bruce Berne, Higgins Professor of Chemistry at Columbia University. Bruce Berne is a lifelong friend of the Silbey family. Bob and Bruce attended school together in Brooklyn, NY, and later carried out their graduate studies at the University of Chicago. Bob and Bruce remained the closest of friends right up until Bob's death in 2011.

6-120 was filled to capacity with current students and postdocs, along with Silbey's colleagues, former students and post-docs, friends and family.

Bruce described Bob's scientific accomplishments in electronic energy transfer in condensed phases, in radiative properties of molecules near surfaces, and in the physical origin of polymer conductivity. He also enjoyed sharing with the audience his enjoyment of Bob's witty and comedic sense of humor.

At the conclusion of the lecture, the crowd gathered outside the recently refurbished Chemistry Education

Before delivering his lecture titled, "The Role of Water in Molecular Recognition and in the Kinetics of Hydrophobic Assembly," Professor Berne devoted time to speak about Silbey's illustrious career. Room

A Peek Inside!

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Office located in 6-205 for a ribbon-cutting ceremony. Presiding over the event were Professor Sylvia T. Ceyer, Head of Chemistry; Professor Susan S. Silbey, the Leon and Anne Goldberg Professor of Sociology and Anthropology at MIT; and Dr. Theresa C. Kavanaugh, former Silbey graduate student and partner at the law offices of Goodwin Procter.

Professor Ceyer described how appropriate it was to dedicate the education office in Bob's name because of his extraordinary teaching talent, his devotion to his students, and the wonderful relationship he had with his colleagues.

Dr. Kavanaugh, expressing enormous affection for her former advisor, referred to an amusing sign Bob kept in his office which read, "Stop whining," and his advice to

science and education. "The honor of the naming of this office is not for Bob," she said, "it is for all his



Images / Liz McGrath

Pat Deutch and Bob's daughter Anna Silbey

children—his academic children—and his daughters and grandchildren—who now know his memory will be honored in perpetuity."



Theresa Kavanaugh recalls her days as a graduate student with Bob. Susan Silbey looks on.

her to act like an adult—"words of wisdom," she said, "I draw on anytime I feel a whine coming on."

Professor Silbey, Bob's wife, declared Bob would not approve of the honor of a dedicated office, but said it was a fitting tribute to a man who was so devoted to



Rosemary and Joel Silbey (Bob's brother) with Bruce Berne



Susan Silbey cuts the ribbon to The Robert J. Silbey Chemistry Education Office

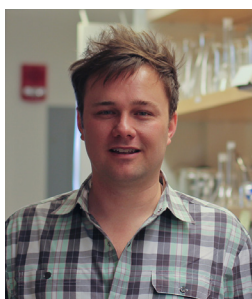


Chuck Kolb with Sylvia Ceyer

The education office will now formally be referred to as "The Robert J. Silbey Chemistry Education Office."

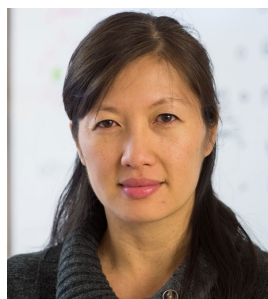
Awards and Accolades

PENDELUTE SELECTED BY THE SONTAG FOUNDATION



Professor Brad Pentelute was delighted to learn that he has been selected by The Sontag Foundation to receive a 2013 Distinguished Scientist Award. The award is given to outstanding early career scientists with inspiring, potential-laden brain cancer research proposals.

TING TO RECEIVE NIH 2013 AWARD



Professor Alice Y. Ting is to receive an NIH 2013 Transformative Research Award.

Seventy-eight grants are being awarded to scientists proposing highly innovative approaches to major contemporary challenges in biomedical research, under the High Risk-High Reward program supported by the National Institutes of Health Common Fund.

"NIH is excited to continue support of visionary investigators, among all career stages, pursuing science with the potential to transform scientific fields and accelerate the translation of scientific research into improved health, through the Common Fund's High Risk-High Reward Research Program. This Program allows researchers to propose highly creative research projects across a broad range of biomedical research areas, that involve inherent risk, but have the potential for high-rewards," said NIH Director Francis S. Collins, M.D., Ph.D.

Ting plans to develop technology that reveals complete "protein maps" of the interior of living cells. Cells are composed of many different parts that each carry out their own critical processes, determined by the proteins present in each one. However, the proteins within each individual part of living cells are still mostly unknown.

The new maps, which will have high spatial and temporal resolution, will illuminate the inner workings of cellular regions that are currently poorly understood. This analysis could shed light on the molecular mechanisms of both disease and drug action, using only a small fraction of the cellular material required for current proteomic studies.

Professor Ting received an NIH Pioneer Award in 2008

THREE RESEARCH TEAMS IN CHEMISTRY RECEIVE DESHPANDE GRANTS

The Deshpande Center for Technological Innovation at MIT announced on October 8, 2013 that it is awarding \$949,764 in grants to twelve MIT research teams currently working on early-stage technologies. These projects have the potential to make a significant impact on quality of life in disease monitoring, cancer treatment, arthritis, water desalination and purification, digital printing, nano-electronics, multi-material fabrication, peptide synthesis, retinal disease detection, actuators, food production and distribution and data communications. Three research teams from the Department of Chemistry were included in the twelve grants awarded.

• **Fast flow peptides: Bradley Pentelute and Klavs Jensen with Andrea Adamo, Surin Khai Mong, Mark Simon, and Alex Vinogradov**

Peptides are an important and growing area of therapeutics. The development of peptide-based pharmaceuticals requires the synthesis of custom peptide sequences made on demand. With current batch systems these can take weeks to synthesize. This project is developing a flow system that greatly accelerates the rate of production and reduces overall synthesis time to minutes.

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• **Stable Carbenes As General Surface Anchors: Jeremiah Johnson with Michelle MacLeod, Michael Mavros, Troy Van Voorhis, and Aleksandr Zhukhovitskiy**

This project is developing a new methodology for attaching materials to surfaces using carbene molecules. The technology has applicability in the manufacture of semiconductors, development of medical devices, any many other industries (Renewal from Fall 2012 grant round).

• **Sensors for Food and Agriculture: Selectivity for Key Markers and the Development of Scalable Manufacture: Tim Swager with Joe Azzarelli, Brendon Deveney, John Fennell, Kelvin Frazier, Jisun Im, Sophie Liu, Katherine Mirica, Alexander Petty, and Jan Schnorr**

Gases emitted by plants indicate the ripeness of produce. An inexpensive low power gas sensor would improve the economics by optimizing the harvest, storage, transportation and distribution of food. This project will develop a low cost sensor allowing for less food spoilage and more efficient distribution. (Renewal from Fall 2012 grant round).

The Deshpande Center, acting as a catalyst for innovation and entrepreneurship, awards grants that fund proof-of-concept explorations and validation for emerging technologies. Marty Schmidt, Acting Provost, MIT commented, "The Deshpande Center is truly a 'gem' at MIT. In spite of its comparatively short 10-year history, the Deshpande Center has played a profound role in accelerating the movement of ideas to real impact. This year's grantees represent a fascinating cross-section of MIT research, and I look forward to seeing them write the next exciting chapter of the Deshpande Center story."

MILNER RECEIVES ACS GRADUATE FELLOWSHIP



Philip Milner, a third year graduate student in the Buchwald group has been selected by the Executive Committee of the Division of Organic Chemistry, an American Chemical Society Division of Organic Chemistry Graduate Fellowship.

Philip will attend the 2014 National Organic Symposium when he will present a poster based on his research.

NAMED LECTURES

SIGMA-ALDRICH LECTURE IN ORGANIC CHEMISTRY



Photo / Liz McGrath

L-R: Professor Rick Danheiser, Professor Sarah Reisman and Dr. Scott Batcheller, R&D Manager at Sigma Aldrich

Professor Sarah Reisman, Caltech, visited the department on October 3, 2013, to deliver the "Sigma-Aldrich Lecture in Organic Chemistry" seminar. The topic of Professor Reisman's talk was: "New Methods and Strategies for the Synthesis of Polycyclic Natural Products."

The Reisman Laboratory conducts research in the field of natural product synthesis, with an emphasis on the development of new synthetic methods that facilitate the construction of complex molecules.

MERCK-BANYU LECTURE IN ORGANIC CHEMISTRY

The Merck-Banyu Lecture in Organic Chemistry was delivered by Professor Mamoru Tobisu, Osaka University on October 24, 2013. The title of his talk was "Catalytic Transformation of Strong Sigma-Bonds: from New Cross-Coupling to Heterocycle Synthesis."

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Professor Tobisu is no stranger to MIT. In 1999 he spent five months as a Visiting Student in the lab of Professor Greg Fu.

Research interests in the Tobisu lab are primarily focused on the invention of new synthetic methodologies, with a particular emphasis on the design and development of novel catalytic systems by taking advantage of unique features of transition metal complexes.

Pictured L-R: Tim Adams, graduate student in the Movassaghi Lab and Professor Mamoru Tobisu, Osaka University.

NESACS-YCC / JCF-GDCh GERMAN EXCHANGE PROGRAM



Photo / Liz McGrath

Visiting the DCIF: Pictured far left front row is Anne Rachupka, Operations Manager, DCIF. Second from right in the front row is Dr. Michael Strem and third in from the right in the back row is Alex Taylor.

The Northeastern Section of the American Chemical Society (NESACS), the Younger Chemists Committee (YCC), and its Education Committee once again hosted the German Exchange Program which has been in operation since 2001. Every other year, it hosts approximately 12 German graduate chemistry students from Boston and, in off years, they send approximately 12 students to Germany.

The Exchange Program is an arrangement between NESACS-YCC and The Young Chemists Forum (JCF) of the German Chemical Society (GDCh). The JCF-

GDCh group and its members have many similarities to NESACS-YCC.

Participants are chosen based on their applications and letters of recommendation from their research supervisors. The program that has evolved includes a symposium or research conference that brings together undergraduates, graduate students, and postdoctoral fellows to give oral or poster presentations that describe their research work, and to provide a forum for sharing ideas and scientific understanding. There are visits to academic and industrial research facilities

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ClubChem

ClubChem, MIT's Undergraduate Chemistry Association, held its first faculty dinner of the year on Monday, September 23. The featured guest of this month was Prof. Yogi Surendranath, an MIT alum (PhD '11) and first-year professor in the Chemistry Department. Close to thirty ClubChem members showed up to learn about Prof. Surendranath's research interests in electrochemical current conversion, and to hear about his path from graduate student to professor at the Institute.



After digging into Thai food from Rod Dee, Professor Surendranath entertained students with a presentation about alternative energy sources and his lab's approach to solving global challenges in energy storage and utilization. His enthusiasm evidently sparked interest in a number of undergraduates, who remained after the dinner to engage in lengthy conversations with Prof. Surendranath. He was also eager to encourage anyone interested in his research to contact him for a UROP position.

"I thought the faculty dinner was superb! This was my first time coming to a ClubChem meeting, and it was great to make friends who are also planning to major in Course 5. After the dinner, Professor Yogi gave an entertaining presentation about various applications of Chemistry and his research. I had a great time," said Jin Yoon ('17), a prospective Course V major.

ClubChem's faculty dinners aim to provide a dynamic platform to bring together the MIT Chemistry faculty and undergraduates. Most of the core chemistry undergraduate classes consist of students from a diverse set of majors, while upper-level chemistry

classes tend to have first-year graduate students in them. Thus, Course V majors often face a difficult time in getting to know their professors well. The monthly dinners, however, have shown success in bridging the gap between the faculty and undergraduates within the Chemistry department.

Prof. Surendranath particularly related to those who may be undecided in their career or the particular field of chemistry they want to pursue. By sharing stories from his undergraduate and graduate years, he gave practical advice on choosing the right path. First-year ClubChem member Alfredo Valdivia ('17) commented, "I wanted to say thank you very much for today's dinner. I can honestly say that it helped to solidify my choice of pursuing a major in chemistry. I am grateful that I got to meet someone like Professor Yogi, who is doing some incredible research with implications everywhere."

The faculty dinner with Prof. Surendranath was a great start to ClubChem's fall lineup, and more events to



increase interest in Course V are to come. ClubChem would like to thank Prof. Yogi Surendranath for taking time out of his busy schedule to have dinner with chemistry undergraduates!

ClubChem is grateful to Mr. James K. Littwitz, SB '42, who, on the occasion of his 60th reunion, decided to demonstrate his continuing support for MIT's Chemistry Department and its students by establishing a fund to promote undergraduate activities. The Littwitz fund has been providing funding for ClubChem for the last several years for many of the activities described.

-Contributed by Ethan Klein '15 and Alice Choi '14



Akamai

From Theory to Practice

MIT School of Science

Marc A. Kastner, *Dean*



colloquium



Tom Leighton

CEO & Co-Founder of Akamai Technologies
Professor of Applied Mathematics at MIT

Wednesday, October 30, 2013

4:00 p.m. Community Reception
Stata Center Lobby, 32-123

4:30 p.m. Lecture and Q&A
Stata Center, 32-123

Free and Open to the Public

Biography

Dr. Tom Leighton co-founded Akamai Technologies in 1998, and served as Akamai's Chief Scientist for 14 years before becoming Chief Executive. Dr. Leighton is Akamai's technology visionary and leads the senior management team in setting the company's strategic direction, while engaging directly with customers and partners from around the globe. He is also a member of the Board of Directors.

Prior to his role as CEO of Akamai, Dr. Leighton was also a Professor of Applied Mathematics at MIT and a member of the Computer Science and Artificial Intelligence Laboratory (CSAIL). Dr. Leighton has published more than 100 research papers, and his leading text on parallel algorithms and architectures has been translated into several languages. Dr. Leighton graduated summa cum laude from Princeton University with a B.S. in Engineering. He received his Ph.D. in Mathematics from MIT.

AstraZeneca Distinguished Graduate Chemistry Symposium

November 15, 2013

AstraZeneca R&D Boston, 35 Gatehouse Drive, Waltham, MA 02451



We are pleased to announce the 5th annual AstraZeneca Distinguished Graduate Chemistry Symposium, to be held on Friday, November 15, 2013. At this event, you will hear from recipients of AstraZeneca's chemistry fellowships as well as AstraZeneca scientists, who will speak about drug discovery as it relates to specific projects. This will be a great opportunity to interact with our colleagues from many scientific disciplines.

2011-2013 AZDG Fellowship Award Recipients

<u>Name</u>	<u>Group</u>	<u>University</u>
Angela Gao	Johnson	MIT
Alexander Vinogradov	Pentelute	MIT
Daniel Silverio	Hoveyda	Boston College
Xixi Sun	Tan	Boston College
Brian Sparling	Shair	Harvard University
Jenny Liu	Johnson	MIT
Rob Ely	Morken	Boston College
Miao Yu	Hoveyda	Boston College
Giannina Schaefer	Schreiber	Harvard

If you are a chemistry graduate student or post-doc and would like to attend this event, RSVP to Tricia May at tricia.may@astrazeneca.com. **Space is limited so attendance will be on a first-come first-serve basis.**



in the geographic area as well as social and cultural excursions to develop personal interactions among the participants.

The German exchange group visited the Department of Chemistry on Monday, October 2, stopping first for a tour of the Department of Chemistry Instrumentation Facility, then proceeding on to the X-ray-Diffraction Facility to meet with the Director, Dr. Peter Mueller. They then had the opportunity to meet graduate students for discussion and were taken on a lab tour. Dr. Michael Strem, CEO of Strem Chemicals, accompanied the group. Dr. Strem is the chair of the committee that arranged the exchange. Alex Taylor, a member of the committee also accompanied the group on their visit.

The Northeastern Section Younger Chemists Committee is still accepting applications for the 2014 exchange to Germany!

The coming exchange will take students from the Boston area to Jena, Germany, a beautiful town in eastern Germany with a rich scientific history that today has a strong high-tech industry.

Applications include an abstract for a poster or oral presentation, a letter of recommendation from a research advisor, and permission from the department chair to participate in the program; deadline for submission is November 1st.

More information and the digital application can be found at <http://nsycc.org/germany-exchange-program/>.

RADCLIFFE FELLOWSHIPS

The fellowship program at the Radcliffe Institute for Advanced Study welcomes fellowship applications in the natural sciences and mathematics. For full details, visit: <http://www.radcliffe.harvard.edu/fellowship-program> The deadline for applications is **November 1, 2013**.

NATIONAL RESEARCH COUNCIL OF THE NATIONAL ACADEMIES

The National Research Council of the National Academies sponsors a number of awards for graduate, postdoctoral and senior researchers at [participating federal laboratories and affiliated institutions](#). These awards include generous stipends ranging from \$42,000 - \$80,000 per year for recent Ph.D. recipients, and higher for additional experience. [Graduate](#) entry level stipends begin at \$30,000. These awards provide the opportunity for recipients to do independent research in some of the best-equipped and staffed laboratories in the U.S. Research opportunities are open to U.S. citizens, permanent residents, and for some of the laboratories, foreign nationals. More detailed information and an online application can be found at www.nationalacademies.org/rap. Questions should be directed to the NRC at 202-334-2760 (phone) or rap@nas.edu.

Review cycles:

Review Cycle: November; Opens September 1; **Closes November 1**

Review Cycle: February; Opens December 1; Closes February 1

Review Cycle: May; Opens March 1; Closes May 1

Review Cycle: August; Opens June 1; Closes August 1

WINTON SCHOLARSHIPS

The Winton Scholarships*, University of Cambridge, UK, scheme is a route for attracting the brightest students to the department with the 3rd cohort of 8 students just starting their PhD studentships. Applications are currently being invited for studentships for those applying to commence PhD study in October 2014. Closing deadline for Expressions of Interest (and for applicants to have applied to the University for admission) is 3rd December 2013. The awards are open to applicants of all nationalities and will provide for all university and college fees due, maintenance at the current UK research Council level and a contribution to research expenses. Applicants must have a supervisor from any of the groups in Physics, with projects encouraged in all areas with links to the broad field of sustainability, and joint supervision with other departments is also permitted. Further details including expression of interest form can be found by following this link - [Winton Scholars for 2014](#). Please contact the Programme Manager; Nalin Patel (nlp28@cam.ac.uk) for further information on the Winton Scholarships or any other Winton related activities.

*subject areas may be of interest to chemists. There is overlap between US chemistry and UK physics (and material science, and some other engineering disciplines)

CALL FOR APPLICATIONS 2014–2015 FACULTY FOR THE FUTURE FELLOWSHIPS



FACULTY FOR THE FUTURE

The Schlumberger Foundation is accepting applications for the 2014–2015 Faculty for the Future Fellowships **from September 9th to November 15th, 2013** for new applications; **from September 9th to November 8th, 2013** for renewal applications.

The Schlumberger Foundation Faculty for the Future program, launched in 2004, awards fellowships to women from developing and emerging economies to pursue PhD or post-doctoral studies in the physical sciences*, engineering and technology at leading universities abroad.

The long-term goal of the Faculty for the Future program is to generate conditions that result in more women pursuing academic careers in scientific disciplines thus contributing to the socio-economic development of their home countries and regions. The Faculty for the Future program is growing each year and has become a powerful community of 323 women scientists from 63 countries. Grant recipients are selected as much for their leadership capabilities as for their scientific talents. Ultimately they are expected to return to their home countries to continue their academic careers, to further their research, to teach and to become inspirational role models for other young women.

Faculty for the Future grants are based on actual costs up to a maximum of USD 50,000 per year and may be renewed through to completion of studies subject to performance, self-evaluation, and recommendations from supervisors.

Candidates should have applied to, have been admitted to, or be currently enrolled in a university abroad when submitting their Faculty for the Future grant application. Candidates must hold an excellent academic record and illustrate their commitment to teaching and research or to using their scientific knowledge in public policy advocacy. Candidates should demonstrate leadership skills and have a track record in encouraging young women into the sciences.

Schlumberger Foundation is an independent nonprofit entity that supports science and technology education. Recognizing the link between science, technology, and socio-economic development, as well as the key role of education in realizing individual potential, the Schlumberger Foundation's flagship program is Faculty for the Future.

*Related disciplines may also be awarded. For example, awards in biological sciences are limited to interdisciplinary research between physical and biological sciences.
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ALL INFORMATION ABOUT THE FACULTY FOR THE FUTURE FELLOWSHIP PROGRAM CAN BE FOUND AT:

www.facultyforthefuture.net

IF YOU BELIEVE YOU ARE ELIGIBLE, PLEASE APPLY ON-LINE AS OF **SEPTEMBER 9th 2013 AT:**

www.fftf.slb.com



GRADUATE FELLOWSHIPS

For Innovators in the Applied Physical, Biological, and Engineering Sciences

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- Broad understanding of physical principles
- Outstanding potential for innovative research
- Applying to or enrolled in a PhD program
- American citizenship or permanent residency

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- Chemistry
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- Engineering
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- Mathematics
- Physics
- Quantitative Biology/Biotechnology

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- Two options available, chosen at time of award

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- > \$32,000/9 month Personal Stipend*
- > Full Tuition Equivalent
- > Renewable for up to 5 years

OPTION 2: FIVE-YEAR COORDINATED

Hertz Period—Two Years

- > \$37,000/9 month Personal Stipend*
- > Full Tuition Equivalent

Other Fellowship Period—Up To Three Years

- > \$5,000/year Supplemental Stipend* from Hertz
- > Requires Awardee to accept 3-year Fellowship from another source

*+\$5,000/yr for dependent child care



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NOVEMBER 1, 2013

APPLICATION DEADLINE

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FOR ACADEMIC YEAR
2014-2015

Job Opportunities

Please contact Liz McGrath, (emg@mit.edu) for further details

Institution/Company	#	Level of Hire	Area	Tenure Track
Florida State University	1	Assistant Professor	Organic Syntheses and/or Chemical Biology	Yes
The University of Akron	1	Full Professor/Chair	Chemical Sciences	
SUNY (Albany)	3	Assistant or Associate Professor	Organic Synthesis/Forensic Chemistry or Toxicology/Analytical	Yes
University of Wyoming	1	Assistant Professor	Inorganic Chemistry	Yes
University of California - Riverside	1	Assistant Professor	Organic Chemistry	Yes
Ohio State University	2	Assistant Professor	Analytical and Chemical Synthesis	Yes
University of Connecticut	3	2 Assistant/Associate or Full Professors	Surfactant-based nanoparticles, aggregates, or films.	Yes
UC San Diego	3	Assistant Professor	Biochemistry/Environmental Chemistry/Physical Chemistry	Yes
UCLA	1	Assistant/Associate or Full	Inorganic Chemistry	Yes
Loyola University Chicago	1	Assistant Professor	Inorganic Chemistry	Yes
California State University, Fullerton	2	Assistant Professor	Bioanalytical and Bio-organic	Yes
NYU	1	Assistant Professor	Physical or Inorganic	Yes
University of British Columbia	1	Assistant Professor	Chemistry for Sustainability	Yes
University of Idaho	1	Assistant Professor	Physical or Analytical	Yes
Purdue University	1	Assistant Professor	Organic Materials	Yes
Franklin College	1	Assistant Professor	General Chemistry/Physical	Yes
University of Pennsylvania	1	Assistant Professor	Inorganic Chemistry, Energy Research, and Evolution	Yes
WYSS Institute	1	Assistant Professor	Polymer Synthesis/Biomaterials	Yes
University of Alabama	1	Assistant Professor	Materials Science	Yes
University of Utah	>1	Assistant Professor	Physical Chemistry	Yes
Grand Valley State University	1	Assistant Professor	Analytical Chemistry	Yes
Hendrix College	1	Assistant Professor	General	Yes
University of Notre Dame	6	Assistant/Associate or Full	Analytical Sciences and Eng.	Yes
Leiden University and the University of Clermont-Ferrand	1	Postdoctoral	Quantum Monte-Carlo calculations on molecules interacting with metal surfaces.	N/A
Idaho National Lab	1	Postdoctoral	Electrochemical Processing	N/A