Mature soot particle 10-50 nm in size

Fast radical-driven surface reactions

Incipient soot particle 1-6 nm in size

Fast radical chain reactions

Resonance-stabilized radicals
Raindrops Spur Soil-filled Mist
$M = \text{Co} \quad \text{COF-366-Co}$
Quantum expert Birgitta Whaley appointed to White House science advisory council

Nancy L Muto posted on Oct 23, 2019

K. Birgitta Whaley, a UC Berkeley professor of chemistry and co-director of the Berkeley Quantum Information and Computation Center, has been appointed to the U.S. President’s Council of Advisors on Science and Technology (PCAST), the White House announced today (Tuesday, Oct. 22).

Whaley, who is also a faculty scientist at Lawrence Berkeley National Laboratory, was among seven new advisers, the first PCAST members appointed by President Donald Trump since his inauguration three years ago. Upon signing an executive order this morning launching PCAST, President Trump indicated that he would appoint another nine advisers, for a total of 16.

“I am honored to serve on the PCAST advisory council,” Whaley said.
The council was created in 1990 to advise the president on policies that affect science, technology, and innovation, as well as building the workforce of the future and supporting foundational research and development across the country.

PCAST is co-led by the president’s science adviser, the director of the Office of Science and Technology Policy (OSTP), a position that had remained unfilled for two years until Kelvin Droegemeier was appointed in January 2019.

“Under this administration, science and technology in America continues to advance by leaps and bounds. PCAST will be critical to our continued efforts, with each member bringing a unique expert perspective to the table. By convening a diverse group of our nation’s foremost leaders across a broad range of fields, we can leverage the full innovation ecosystem, solve some of the nation’s greatest challenges and ensure America’s science and technology leadership for generations to come,” Droegemeier said.

Whaley is a foremost expert in the fields of quantum information, quantum physics, molecular quantum mechanics and quantum biology. She has authored more than 230 scientific publications and is a recipient of awards from the Bergmann, Sloan and Alexander von Humboldt foundations. Whaley is a member of the American Academy of Arts and Sciences and of the International Academy of Quantum Molecular Science, and has served as chair of the Division of Quantum Information in the American Physical Society. She earned a B.A. in chemistry from Oxford University and a Ph.D. in chemical physics from the University of Chicago.

The other new advisers are Catherine Bessant of North Carolina, chief operations and technology officer of Bank of America; Dario Gil of New York, director of IBM Research; Sharon Hrynkw of Virginia, senior vice president for medical affairs for Cyclo Therapeutics; H. Fisk Johnson of Wisconsin, CEO and chairman of the board of S. C. Johnson & Son Inc.; Attiganal Sreeram of Michigan, chief technology officer and senior vice president of Dow Inc.; and Shane Wall of Oregon, chief technology officer for HP and director of HP Labs.

Prominent heavy-element chemist Polly Arnold has been elected a member of Academia Europaea. Her research focuses on advancing our understanding of the bonding and reactivity of heavy elements, the elements of the f-block of the periodic table. Arnold was recently appointed Chemical Sciences Division Director at the U.S. Department of Energy’s Lawrence Berkeley National Laboratory (Berkeley Lab). Concurrent with her role at Berkeley Lab, she will also join the Chemistry Department faculty at UC Berkeley in January 2020.
Before her appointment as Chemical Sciences Division Director at Berkeley Lab, Arnold served as the Crum Brown Chair of Chemistry at the University of Edinburgh. Among her many other awards and honors, she is also a Fellow of the Royal Society, and was awarded the 2012 Rosalind Franklin Award and Order of the British Empire in 2017 for her outstanding contributions to chemistry and women in STEM.

Founded in 1988, Academia Europaea is a European, nongovernmental association dedicated to the advancement and propagation of excellence in scholarship in the humanities; law; the economic, social, and political sciences; mathematics; medicine; and all branches of natural and technological sciences anywhere in the world for the public benefit, and for the advancement of the education of the public of all ages. Its aim is to promote European research, advise governments and international organizations in scientific matters, and further interdisciplinary and international research.

Academia Europaea’s members are scientists and scholars who collectively aim to promote learning, education, and research. Its approximately 3,800 members include 72 Nobel laureates in addition to leading experts from the physical sciences and technology, biological sciences and medicine, mathematics, the letters and humanities, social and cognitive sciences, economics and the law.

news

Berkeley Lab Appoints Polly Arnold as Chemical Sciences Division Director

Nancy L Muto posted on Jul 24, 2019

Distinguished chemist from the University of Edinburgh will join Berkeley Lab in late September this year.

Renowned heavy-element chemist Polly Arnold has been appointed Chemical Sciences Division Director within the Energy Sciences Area at the Department of Energy’s Lawrence Berkeley National Laboratory (Berkeley Lab). Arnold will join Berkeley Lab in late September this year. Concurrent with her role at Berkeley Lab, she will also join the Chemistry Department faculty at UC Berkeley in January 2020. The announcement follows an international search.
Arnold comes from the University of Edinburgh where she is the Crum Brown Chair of Chemistry. Her research focuses on advancing our understanding of the bonding and reactivity of heavy elements, the elements of the f-block of the periodic table.

Among her many awards and honors, Arnold is a Fellow of the Royal Society, and was awarded the 2012 Rosalind Franklin Award and Order of the British Empire in 2017 for her outstanding contributions to chemistry and women in STEM.

“We are excited to welcome Dr. Arnold to Berkeley Lab,” said Berkeley Lab Director Mike Witherell. “She is truly a remarkable scientist whose impressive leadership in chemistry will help us sustain our world-class science. In addition, she is committed to our goal of fostering a greater culture of inclusion here at the Lab.”

“I have always been hugely impressed with the brilliance and diversity of science that is carried out here, and by the value the Lab also places on the diversity of its people,” Arnold said. “I’m looking forward to working with all my new colleagues, and on a personal note, bringing in my own research on some of the heaviest elements that were first discovered at Berkeley Lab, one of the Department of Energy’s oldest national laboratories.”

With the Franklin Award, Arnold created the short film “A Chemical Imbalance” as a call to action for simple changes to achieve equality of opportunity in science. She has worked with many governments and learned societies worldwide on diversity, equity, and inclusion, and launched a support network for senior women in STEM careers in Scotland called SciSisters. In 2018, Arnold discussed her research in an episode of the BBC podcast Brainwaves.

Arnold received her doctorate in chemistry from Sussex University and was a Fulbright postdoctoral scholar at MIT. She began her independent career in inorganic chemistry at the University of Nottingham before joining the University of Edinburgh’s EaSTCHEM School of Chemistry.

Arnold has been a visiting lecturer in China, the United States, Germany, and France. Her group designs and produces new reactive molecules that are challenging preconceived ideas of f-block chemistry. The 4f-row, or rare earth elements, whose salts are as common as iodine and 10 times less toxic than those of iron, offer great potential for the catalytic conversions of simple inert molecules needed for a future, renewable-based chemical industry.

Controlling the chemistry of the radioactive metals of the 5f-row, the actinides, underpins the long-term, safe management of our nuclear waste legacy. Arnold combines synthetic organometallic techniques with new methodologies to control their reactivity, elicit unprecedented behaviors, and isolate molecules with previously unseen electronic structures and reactivities across the f-block.

A list of Arnold’s publications is available here.

- news
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