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Six UC San Diego Professors Named 2013 AAAS Fellows

Six professors at the University of California, San Diego have been named 2013 Fellows of the American Association for the Advancement of Science, the nation's largest general science organization.

Ronald S. Burton, Seth M. Cohen, Jean-Bernard Minster, Bing Ren, Shankar Subramaniam and **Mark H. Thiemens** were among 388 individuals selected this year by colleagues in their disciplines to be honored by the association for their “efforts toward advancing science applications that are deemed scientifically or socially distinguished.”

The new Fellows, who were announced by the association this week, will be presented with an official certificate and a gold and blue rosette pin (representing science and engineering, respectively) on February 15 at the 2014 AAAS Annual Meeting in Chicago. The six UC San Diego professors honored, with their citations, are:



Ronald S. Burton, professor of marine biology at Scripps Institution of Oceanography, for “distinguished contributions to molecular ecology, speciation, and evolutionary genetics of natural populations of marine organisms.” Burton’s research on copepods, crabs, sea urchins, abalone and fish integrates several approaches to study patterns of dispersal and adaptation to environmental changes in the sea and the mechanisms underlying the formation of new species. The former head of Biology and the Marine Biology Research Division at Scripps, Burton also examines the relationships between molecular genetics and physiological variation within species.



Seth M. Cohen, professor and chair of the Department of Chemistry and Biochemistry, “for distinguished contributions in the field of inorganic chemistry, particularly in small molecule inhibitors of metalloproteins in biology and disease, and metal-organic framework materials.” Cohen is a leader in the design, synthesis and evaluation of inhibitors of metalloproteins—protein molecules, such as hemoglobin, that require metal

ions for their function. A number of metalloproteins are associated with diseases ranging from heart disease to cancer to anthrax infections. Using fundamental principles of inorganic chemistry, Cohen and his colleagues have developed inhibitors that better target the metal active sites of these proteins.



Jean-Bernard Minster, distinguished professor of geophysics in the Cecil H. and Ida M. Green Institute of Geophysics and Planetary Physics at Scripps Institution of Oceanography, “for distinguished contributions in the areas of plate motion, crustal deformation, and satellite geodesy, as well as for community leadership and teaching the next generation of geophysicists.” Minster conducts research on a broad range of geophysical processes, including plate tectonics, space geodesy, seismology studies

and earthquake prediction, and nuclear test-ban treaty verification. Minster is well known for his development of quantitative models of plate motions and for advancing science’s understanding of plate deformation.



Bing Ren, professor of cellular and molecular medicine in the School of Medicine and a member of the Ludwig Institute for Cancer Research, “for outstanding original contributions to the analysis of genome wide distributions of regulatory factors, and of the large scale organization of eukaryotic genomes.” Ren specializes in “epigenetics,” the study of the fundamental mechanisms that control gene expression in mammalian cells.

More specifically, he investigates how the genome’s non-coding regions inform genes about what to do and when during development, throughout life and how variants and dysfunction contribute to human diseases.



Shankar Subramaniam, bioengineering professor in the Jacobs School of Engineering and Joan and Irwin Jacobs Professor in Bioengineering and Systems Biology, “for unique and outstanding contributions at the interface of engineering, life sciences, and informatics, particularly in applications to systems biology and medicine.” Traditionally, in biology, researchers looked at individual parts — molecules, tissues, physical measures such as cholesterol, or individual physiology readouts like systolic and diastolic

pressures. In contrast, engineers are trained to look at how components integrate to give systems-level behavior. UC San Diego researchers, including Subramaniam, were some of the first to bring rigorous principles of engineering and systems-level thinking to the study of biology and medicine.



Mark H. Thiemens, dean of the Division of Physical Sciences and distinguished professor of chemistry and biochemistry, “for distinguished contributions in a wide range of topics, particularly for pioneering work in atmospheric chemistry, solar system evolution, quantum chemistry, and discovery of the mass-independent isotope effect for ozone.” Thiemens is an atmospheric chemist. The chemical techniques he and his colleagues developed in the laboratory have been used to probe a wide variety of

problems—from particulate and ozone pollution in our atmosphere to climate change to questions about the prospects of life on Mars and the origin and evolution of life on earth.

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