

UC SANTA BARBARA

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UCSB PHYSICIST RECEIVES AMERICAN PHYSICAL SOCIETY DISTINCTION

Paul Hansma, professor of physics at the University of California, Santa Barbara, has won the 2000 Biological Physics Prize from the American Physical Society.

A prize from the American Physical Society is one of the highest honors a physicist can receive. It symbolizes the admiration of a physicist's peers for the recipient's accomplishments and contributions to physics.

Fellow physicists recognized Hansma for pioneering contributions to the development of biological scanning probe microscopy and for the molecular resolution imaging of biological molecules in aqueous solutions.

Hansma and his research group design and build scanning probe microscopes, such as the Atomic Force Microscope, for biological and medical applications. They built a series of Atomic Forces Microscopes (AFMs) that served as prototypes for commercially successful AFMs developed and marketed by Digital Instruments, a Santa Barbara company. Now, as a result of about five years of research, the group has prototypes for a new generation of AFMs that can monitor the activity of individual protein molecules.

This new technology has allowed a team of researchers from his group and the UC Santa Barbara research group of his wife, Helen Hansma, to study the functions of two proteins that can shed light on how these molecules help other proteins fold

correctly into the three dimensional shapes that they need to function.

Hansma and his group also invented the Scanning Ion Conductance Microscope (SICM), which can measure the ion conductance through pores in membranes. Recently, the physics professor used this microscope with the AFM to help two UC Santa Barbara research teams uncover the secret behind the strength of abalone shells.

"We are excited about the possibility of making a new generation of adhesives and fibers based on what we have learned, " said Hansma.

Hansma holds a Ph.D. in physics from UC Berkeley. He joined the UC Santa Barbara faculty in 1972.

He has written about 270 articles, including 15 in Science and five in Nature. He holds nine U.S. patents including fundamental, licensed patents in Scanning Probe Microscopy. Five patents are pending including some on a new generation of AFMs that use much smaller cantilevers than present commercial AFMs.

Founded in 1899, the American Physical Society is an organization of more than 40,000 physicists worldwide. It is dedicated to the advancement and diffusion of the knowledge of physics. The society publishes some of the world's leading physics research journals: the Physical Review series, Physical Review Letters, and Reviews of Modern Physics.

Editors: A J-peg image of Paul Hansma is available upon request.

About UC Santa Barbara

The University of California, Santa Barbara is a leading research institution that also provides a comprehensive liberal arts learning experience. Our academic community of faculty, students, and staff is characterized by a culture of interdisciplinary collaboration that is responsive to the needs of our multicultural and global society. All of this takes place within a living and learning environment like no other, as we draw inspiration from the beauty and resources of our extraordinary location at the edge of the Pacific Ocean.