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PAUL K. HANSMA

Transcript of Interviews
Conducted by

Cyrus Mody

at

Santa Barbara, California

on

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(With Subsequent Corrections and Additions)

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This oral history series is an important resource for the history of nanotechnology, documenting the lives and career of key scientists and engineers that shaped and contributed to the contemporary practice of science and technology.

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PAUL K. HANSMA

1946 Born in Salt Lake City, Utah on 28 April

Education

1967 B.A., physics, New College
1968 M.A., physics, University of California, Berkeley
1972 Ph.D., physics, University of California, Berkeley

Professional Experience

University of California, Santa Barbara
1972-1976 Assistant Professor, Physics Department
1976-1980 Associate Professor, Physics Department
1980-present Professor, Physics Department
1994-1997 Co-Chair of Physics Department

Nanotechnology
1989-present Editorial Board Member

Arizona State University
1997-present Advisory Board for Interactive Nano-visualization in Science and Engineering Education (INVSEE) program

Review of Scientific Instruments
1999-present Editorial Board member

Honors

1964 Presidential Scholar (presented by President Johnson)
1967-1971 Fellow, National Science Foundation
1975-1977 Fellow, Alfred P. Sloan Foundation
1983 Professor of the Year, University of California, Santa Barbara
1988 Distinguished Teaching Award, University of California, Santa Barbara
1988 International Advisory Committee, Scanning Tunneling Microscopy
1989 Fellow, American Physical Society
1990 Fellow, American Association for the Advancement of Science
1990-1993 Executive Committee, Division of Chemical Physics, American Physical Society

1991	Paul E. Klopsteg Award, American Association of Physics Teachers
1993	Max Planck Research Award
2000	Biological Physics Prize, American Physical Society
2004	Fellow, Institute of Physics

ABSTRACT

Paul K. Hansma begins the interview by describing his childhood and early interest in building projects. After obtaining his undergraduate degree from New College, Hansma enrolled in the University of California at Berkeley to study condensed matter physics under Gene Rochlin. Upon completing his thesis on externally shunted Josephson Junctions, Hansma accepted a faculty position at the University of California at Santa Barbara and worked on squeezable electron tunneling junctions. It was at that time Hansma heard a lecture by Gerd Binnig on a new technique called scanning tunneling microscopy [STM]. Frustrated by the lengthy time requirements to set up each trial, Hansma began to move away from ultra-high vacuum equipment into STMs that would function in air and liquids. Hansma divided the labor between graduate students, technician Barney Drake, and himself and began building STMs, including the first one to achieve atomic resolution in water. Then, a conference at Cancun, Mexico served as a major impetus for information exchange and helped many groups to achieve atomic resolution. Soon after, at the request of colleague, Calvin Quate, Hansma reviewed a paper on atomic force microscopy [AFM]. The concept intrigued Hansma and he began to shift his research from STM to AFM. After building many iterations of AFMs, Hansma set up a research agreement with Digital Instruments' founder Virgil Elings to receive prototype instruments in exchange for consultation. Hansma concludes the interview by offering insights on the impact of the UCSB Materials Research Laboratory; thoughts on the nanotechnology community; and his current research on bone diagnostic instruments.

INTERVIEWER

Cyrus Mody is an Assistant Professor of History at Rice University. Prior to that position he was the manager of the Nanotechnology and Innovation Studies programs in the Center for Contemporary History and Policy at the Chemical Heritage Foundation. He has a bachelor's degree in mechanical and materials engineering from Harvard University and a Ph.D. in science and technology studies from Cornell University. He was the 2004-2005 Gordon Cain Fellow at CHF before becoming a program manager. Mody has published widely on the history and sociology of materials science, instrumentation, and nanotechnology.

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