

CHEMICAL HERITAGE FOUNDATION

ALAN J. HEEGER

Transcript of an Interview
Conducted by

Cyrus Mody

at

Santa Barbara, California

on

13 and 16 March 2006

(With Subsequent Corrections and Additions)

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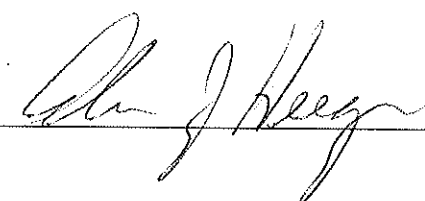
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Signature of Interviewee: 

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ALAN J. HEEGER

1936 Born in Sioux City, Iowa on 22 January

Education

1957 B.S. with High Distinction, physics and mathematics, University of
Nebraska
1961 Ph.D., physics, University of California at Berkeley

Professional Experience

University of Pennsylvania
1962-1964 Assistant Professor
1964-1967 Associate Professor
1967-1982 Professor
1974-1981 Director, Laboratory for Research on the Structure of Matter
1981-1982 Acting Vice-Provost for Research

University of Geneva
1968-1969 Visiting Professor of Physics

University of California at Santa Barbara
1982-1999 Director, Institute for Polymers and Organic Solids
1982-present Professor of Physics
1987-present Professor of Materials (Engineering)

University of Utah
1988-present Adjunct Professor of Physics

UNIAX Corporation
1990-1994 Founder and President
1994-present Chief Scientist, Chairman of the Board

Honors

1963-1965 Alfred P. Sloan Foundation Fellow
1968-1969 John Simon Guggenheim Foundation Fellow
1968 American Physical Society Fellow

1983 Oliver E. Buckley Prize for Condensed Matter Physics
1989 John Scott Award
1992 Doctor of Science (h.c.), Université d'Etat a Mons, Belgium
1995 Balzan Prize, "Science of New Materials," Bern, Switzerland
1996 Doctor of Technology (h.c.), University of Linköping, Sweden
1996 Doctor of Technology (h.c.), Abo Akademi University, Finland
1999 Doctor of Humane Letters (h.c.), University of Massachusetts at Lowell
1999 Doctor of Science (h.c.), University of Nebraska
2000 Nobel Prize in Chemistry
2000 Institute of Physics Fellow, UK
2001 Doctor of Science (h.c.), Japan Advanced Institute for Science and
Technology
2001 Doctor of Science (h.c), South China Institute of Science and Technology
2001 National Academy of Sciences (USA)
2001 President's Medal for Distinguished Achievement, University of
Pennsylvania
2001 Chancellor's Medal, University of California at Santa Barbara
2001 Korean Academy of Science (Foreign Member)
2001 Doctor of Philosophy (h.c.), Bar-Ilan University, Israel
2001 Presidential Chair, University of California at Santa Barbara
2002 National Academy of Engineering (USA)
2005 Doctor of Science (h.c.), Trinity College, Dublin
2005 Albert Einstein Honorary Chair Professor, Chinese Academy of Sciences

ABSTRACT

Alan J. Heeger begins the interview by describing his early decision to attend college and reasons behind changing his major from electrical engineering to mathematics and physics at the University of Nebraska. After obtaining his undergraduate degree, Heeger enrolled in Cornell University to pursue his interest in theoretical physics. After one year Heeger moved and attended University of California at Berkeley and switched his focus to experimental physics. Upon receiving his Ph.D. under Alan Portis, Heeger took an assistant professorship at the University of Pennsylvania's physics department. At Penn Heeger's interests included spin-wave theory, metal physics, the Kondo problem, and nuclear magnetic resonance (NMR) in magnetic materials. After achieving tenure, Heeger took a sabbatical at the University of Geneva to work on metal physics. Before leaving for Geneva, Heeger was introduced to TCNQ and shifted the focus of his research on that upon returning to the United States. Then in 1973, Heeger began investigating polysulfur nitride along with Alan MacDiarmid and Hideki Shirakawa that led to seminal publications on conducting polymers. After twenty years at the University of Pennsylvania, Heeger moved to the University of California at Santa Barbara's physics department, where he continued to conduct his research and collaboration with other scientists. Heeger concludes the interview by discussing thoughts of his role as a device physicist, and how he can best move technology development forward.

INTERVIEWER

Cyrus Mody is an Associate 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. 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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NOTES

1. Theodore P. Jorgensen, *The Physics of Golf* (New York: The American Institute of Physics, 1999).
2. Alan J. Heeger, Alan G. MacDiarmid, and Hideki Shirakawa were awarded the 2000 Nobel Prize in Chemistry for the discovery and development of conductive polymers.
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