CURRICULUM VITAE
DAVID ROBERT NELSON

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Born: May 9, 1951
Birthplace: Stuttgart, Germany
Citizenship: U.S.

Married, three children

EDUCATION

1. A.B., Cornell University, May 1972
   Summa cum laude in physics with Distinction in all subjects
   National Merit Scholar, Phi Kappa Phi, Phi Beta Kappa
   Cornell Six Year Ph.D. Program

2. M.S., Cornell University, May 1974
   Major subject: Theoretical Physics

3. Ph.D., Cornell University, January 1975
   Major subject: Theoretical Physics
   Thesis subject: Applications of the Renormalization Group to Critical Phenomena
   Supervisor: Michael E. Fisher

EMPLOYMENT

1.	Junior Fellow, Harvard Society of Fellows	1975-78
2.	Associate Professor of Physics, Harvard University	1978-80
3.	Professor of Physics, Harvard University	1980-92
4.	Mallinckrodt Professor of Physics, Harvard University	1992-05
5.	Professor of Applied Physics, Harvard University	1997-
6.	Chair of Physics Department, Harvard University	1997-00
7.	Arthur K. Solomon Professor of Biophysics and Professor of Physics and Applied Physics	2005-
8.	Consulting with IBM T. J. Watson Research Laboratory, Exxon Research, Bell Laboratories and the Mitre Corporation	

HONORS

A.P. Sloan Fellowship	1979-83
MacArthur Prize Fellowship	1984-89
National Academy of Sciences Award for Initiatives in Research	1986
Guggenheim Fellowship	1993-94
Harvard Ledlie Prize	1995
Bardeen Prize (for research in superconductivity)	2003
Buckley Prize (for research on soft condensed matter)	2004
Welsh lectures, University of Toronto	2001
Mary Upson Visiting Professor, Cornell University,	2004
Mayent-Rothschild Visiting Professor Paris, Insitute Curie	2005
Sommerfeld Lecturer, Ludwig-Maxilliam University, Munich	2006
Lorentz Visiting Professor Leiden	2006
Mark Kac Memorial Lecturer, Los Alamos National Laboratory	2007
Primakoff Lecturer, University of Pennsylvania	2007
Visiting Professor, Neils Bohr Insitute, Copenhagen	2009

SOCIETIES

Fellow, American Physical Society
American Association for the Advancement of Science
Elected to American Academy of Arts and Sciences, 1988
Senior Fellow, Harvard Society of Fellows, 1986-2003
Elected to National Academy of Sciences, 1994

RESEARCH INTERESTS

- Collective effects in the physics, chemistry and materials science of condensed matter
- Interplay between fluctuations, geometry and statistical mechanics. In collaboration with his Harvard colleague, Bertrand I. Halperin, he is responsible for a theory of dislocation-mediated melting in two dimensions. The prediction of Halperin and Nelson of a fourth “hexatic” phase of matter, interposed between the usual solid and liquid phases, has now been confirmed in experiments on thin films and bulk liquid crystals.
- Research includes a theory of the structure and statistical mechanics of metallic glasses and investigations of “tethered surfaces,” which are two-dimensional generalizations of linear polymer chains. These fishnet-like structures exhibit a remarkable low temperature flat phase upon cooling.
- Flux line entanglement in high temperature superconductors. At high magnetic fields, thermal fluctuations cause regular arrays of flux lines to melt into a tangled spaghetti state. The physics of this melted flux liquid has important implications for many of the proposed applications of these new materials.
- Current interests include vortex physics, the statistical mechanics of polymers, topological defects on frozen topographies and biophysics problems such as the motion of biological motors along polynucleotide sequences and the unzipping of DNA and population genetics.
- Current biological interests include measuring selective advantages from sector angles with Saccharomyces cerevisiae, genetic drift and chirality at the frontier of range expansions of bacteria, viral spreading on inhomogeneous bacterial substrate, theory and experiments on mutualistic behavior of microorganisms at frontiers and dislocation-mediated remodeling of cell walls.