

## DUDLEY R. HERSCHBACH

### Education and Professional Experience

B.S. in Mathematics (1954) and M.S. in Chemistry (1955) at Stanford University,  
A.M. in Physics (1956) and Ph.D. in Chemical Physics (1958) at Harvard.

### POSITIONS HELD

2007-present	Professor of Chemistry	Texas A&M University
2005-present	Professor of Physics	Texas A&M University
2003 – present	Research Professor (Emeritus)	Harvard University
1976-2003	Baird Professor of Science	Harvard University
1963-2003	Professor of Chemistry	Harvard University
1959-1963	member of the Chemistry Faculty	University of California, Berkeley
1957-1959	Junior Fellow, Society of Fellows	Harvard University

### FIVE RELATED PUBLICATIONS

1. M. Gupta and D. R. Herschbach, *Slowing and Speeding Molecular Beams by Means of a Rapidly Rotating Source*, J. Phys. Chem. A **105**, 1626-1637 (2001).
2. D. Herschbach, *Molecular collisions, from warm to ultracold*, Faraday Disc. **142**, 9-23 (2009).  
*Manipulation of Slow Molecular Beams by Static External Fields*,
3. T.J. McCarthy, M.T. Timko, and D.R. Herschbach, J. Chem. Phys. **125**, 133501-1 –13 (2006).
4. *A Cool Pulsed Molecular Micro-Beam*, Bum Suk Zhao, Marta Castillejo, Doo Soo Chung, Bretislav Friedrich, D.R. Herschbach, Rev. Sci. Inst. **75**, 146-150 (2004).
5. D. Herschbach, Forward, in *Cold Molecules: Theory, Experiment, Applications*, R.V. Krems, W.C. Stwalley, B. Friedrich, Eds (CRC Press, New York, 2009).

### FIVE OTHER SIGNIFICANT PUBLICATIONS

1. Q. Wei, S. Kais, and D. Herschbach, *Dimensional Scaling Treatment of Stability of Atomic Anions Induced by Superintense, High-frequency Laser Fields*, J. Chem. Phys **127**, 094301-1-6 (2007).
2. A. Svidzinsky, et al and D. Herschbach, *Bohr model and dimensional scaling analysis of atoms and molecules*, Int'l. Rev. Phys. Chem. **27**, 665-723 (2008).
3. D. Herschbach, Einstein as a Student, in *Einstein for the 21<sup>st</sup> Century: His Legacy in Science, Art, and Modern Culture*, P.L. Galison, G. Holton, S.S. Schweber, Eds (Princeton Univ. Press, 2008), pp 217-238; 336-338.
4. D. Herschbach, Seeding liberal arts courses with science parables, Science News 174 (No. 2), **32** (19 July, 2008).
5. A.V. Sokolov, K.K. Lehmann, M.O. Scully, and D. Herschbach, *Orienting molecules via an ir and uv pulse pair: Implications for coherent Raman spectroscopy*, Phys. Rev. A **79**, 053805-1 to 10 (2009).

### SYNERGY

#### Awards

Pure Chemistry Prize of the American Chemical Society (1965),  
Linus Pauling Medal (1978),  
Michael Polanyi Medal (1981),  
Irving Langmuir Prize of the American Physical Society (1983),  
Nobel Prize in Chemistry (1986), jointly with Yuan T. Lee and John C. Polanyi,  
National Medal of Science (1991),  
Jaroslav Heyrovsky Medal (1992),

Sierra Nevada Distinguished Chemist Award (1993),  
Kosolapoff Award of the ACS (1994),  
William Walker Prize (1994).  
Named by Chemical & Engineering News among the 75 leading contributors to the chemical enterprise in the past 75 years (1998).  
Public Service Award of Science Society Presidents Council (2003).

## **Memberships**

### ***Fellow of:***

American Academy of Arts and Sciences,  
National Academy of Sciences,  
American Philosophical Society,  
Royal Chemical Society of Great Britain

### ***Honorary life member of:***

Association Women in Science; New York Academy of Sciences; Friends of Benjamin Franklin

***Public Service:*** Chairman, Board of Trustees of Science Service (1993- ); Chairman, Hans Bethe Center for Arms Control and Nonproliferation (1985- ); Chairman, National Academy of Sciences Office for Public Understanding of Science (1995-2001); Chairman, American Physical Society History of Science Committee (1995-2005); Member, Board of Overseers, Boston Museum of Science (1995-2005); Member, Board of Overseers, Chemical Heritage Foundation (2005- ), Member, National Commission for STEM Education in 21<sup>st</sup> Century (2006- ); Executive Committee, Creativity Foundation (2000- )

***Talks:*** The PI has over the past 5 years given at least a dozen research talks on the challenge of producing slow molecules and the phenomena which thereby would be made accessible, usually under the title “Outdoing Maxwell’s Demon.” Venues for these include Harvard, Stanford, Univ. of California at Berkeley, Princeton University, Los Alamos and Livermore National Labs, Japan, Korea, Cuba, Croatia, Spain as well as the AMOS annual research meeting at Airlie.

## **Research Collaborators of PI during past 48 months:**

Ioan Andricioaei, Asst. Prof of Biophysics, Univ. of Michigan; R.Dean Astumian, Prof. of Physics, Univ of Maine, Orono, ME; Marta Castillejo, Professor, Universidad Complutense de Madrid, Spain; Doo Soo Chung, Prof. Dept of Physics, Univ of Seoul, Korea; T. Ellenberger, Prof, Harvard Medical School; M.D. Frank-Kamanetskii, Prof, Dept of Biology, Boston College; Laurence Fried, W. Michael Howard, Staff Scientists, Livermore Nat’l Lab; Bretislav Friedrich, Staff Scientist, Fritz Haber Institute, Berlin; Anita Goel, President of Nanbiosym, Inc, Cambridge, MA; Manish Gupta, Vice President, Los Gatos Research, Los Gatos, CA; R.J. Hemley, Director, Geophysical Laboratory, Carnegie Institution of Washington; Sabre Kais, Prof. of Chemistry, Purdue University, IN; Martin Karplus, emeritus Prof. of Chemistry & Chemical Biology, Harvard; J.L. Kinsey, Prof. of Chemistry, Rice University, TX; Hongkwang Mao, M. Somayazulu, staff scientists at Geophys Lab, Carnegie Institution; T.J. McCarthy, Frontier Technology, Inc., Beverly, MA; Henry Scott, Assistant Prof, of Chemistry, Indiana University; Marlan O. Scully, Prof of Physics, Texas A & M Univ; Qucun Shi, Research Associate, Dept of Chem, Purdue University, IN; Y. Song, Assistant Professor, Dept. Chem, Univ of Western Ontario, Canada; A.A. Svidzinsky, Research Associate, Dept of Phys, Texas A & M Univ; M.T. Timko, Aerodyne Research, Inc, Billerica, MA; Bum Suk Zhao, Research Assistant, Fritz Haber Institute, Berlin

## **Graduate & Postdoctoral Advisors & Advisees of PI:**

***Advisors:*** Harold S. Johnston, now emeritus Prof. of Chemistry, Univ of California, Berkeley; E. Bright Wilson, Jr., deceased Prof. of Chemistry, Harvard Univ. Had no postdoctoral advisor.

***Advisees during past 5 years:*** Grad students Anita Goel and Bum Suk Zhao; Postdocs Yang Song, Michael Timko, Tim McCarthy; current affiliations included above.