

Peter G. Wolynes Biography

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Peter Guy Wolynes (April 21, 1953-) was born in Chicago, Illinois, USA, the son of Peter Wolynes, a chemical engineer, and Evelyn Elanor Wolynes (née Etter). He spent his youth in northern Indiana, notably attending Alfred E. Nobel Elementary School and dropping out of William A. Wirt High School in Gary, Indiana.

Wolynes studied chemistry at Indiana University, obtaining a BA in 1971, and then pursued graduate studies at Harvard University, obtaining a PhD in Chemistry in 1976 for a thesis entitled *Hydrodynamic boundary conditions and mode-mode coupling theory*, under the supervision of Roy G. Gordon. He was briefly a postdoctoral fellow with John Deutch at MIT, before joining the Harvard Chemistry faculty as Assistant Professor (1976-1980). He later moved to the University of Illinois at Urbana-Champaign as Professor of Chemistry (1980-2000), and to the University of California San Diego as Francis Crick Professor (2000-2011). Since 2011, he is Bullard-Welch Foundation Professor of Chemistry at Rice University, where since 2019 he also co-directs the Center for Theoretical Biological Physics.

Wolynes trained as a theoretical chemist with a focus on hydrodynamics and has since been interested in various problems in many-body chemical physics. In the mid-1980s, in close collaboration with Ted Kirkpatrick, he formulated a theory of structural glasses, strongly influenced by results from the mean-field theory of spin glasses. In parallel, he adapted spin glass ideas to the biophysics of protein folding. Both directions persist to this day in his broad research portfolio.

Wolynes is a fellow of the American Physical Society (APS, 1988), the Biophysical Society (2003), and the American Philosophical Society (2006). He is also a member of member of the National Academy of Sciences (1991), the American Academy of Arts and Sciences (1991), and the German Academy of Sciences Leopoldina (2007) as well as a foreign member of the Royal Society (2007) and the Indian National Science Academy (2016). He has notably received the 1986 American Chemical Society (ACS) Award in Pure Chemistry “for his major contributions to the theory of condensed phases based on the interplay of chemical dynamics and many-body phenomena and his highly original work dealing with quantum dynamics in condensed phases”; the 1988 Phi Lambda Upsilon National Fresenius Award; the 2000 ACS Peter-Debye Award “for contributions to the understanding of many-body phenomena in chemistry and biology”; the 2004 APS Max Delbrück Prize in Biological Physics “for his conceptual breakthroughs in protein dynamics and protein folding, and his critical insights toward the understanding of how proteins work at the most fundamental level”; the 2009 Joseph O. Hirschfelder Prize in Theoretical Chemistry from the University of Wisconsin-Madison; and the 2012 ACS Award in Theoretical Chemistry “for discoveries concerning many-body phenomena in chemistry, biology and physics including the role of energy landscapes in determining the dynamics and folding of proteins

and the glass transition". He has further been granted honorary doctorates from Indiana University (1988) and Stockholm University (2010).