



HOUSTON PHILOSOPHICAL SOCIETY

Presents

**"The intimate role of water in the
chemistry of life"**

by

Dr. Peter J. Rossky

**Professor of Chemical and Biomolecular
Engineering**

**and Dean of the Wiess School of Natural Sciences
Rice University**

March 19, 2015

671st

Meeting of the Houston Philosophical Society

ABSTRACT

The molecular activity that sustains life and that allows for reproduction of species employs very complex molecules that take on specific geometries and have specific functions. These complex molecules carry out their

functions primarily in a liquid water environment. This environment plays a special role in determining the shape of the large molecules of life processes, such as proteins and DNA, and the specificity with which biochemical processes take place. After a brief discussion of the “biography” of water and its pure liquid and solid phases, the way in which water interacts with biomolecules to control their structure and function will be discussed.

SPEAKER'S BIO



Peter Rossky received his undergraduate degree in Chemistry summa cum laude from Cornell University and his Ph.D. in Chemical Physics from Harvard. After postdoctoral research in the area of ionic solution theory, in 1979 he joined the faculty at the University of Texas at Austin, where he last held the M. K. Collie-Welch Regents Chair in Chemistry. In 2014, he joined the faculty at Rice University as the Harry C. and Olga K. Wiess Chair in Chemistry, Professor of Chemical and Biomolecular Engineering, and Dean of the Wiess School of Natural Sciences. Rossky has published more than 250 papers in the fields of solution chemistry, computer simulation, and theoretical

chemistry. His work has emphasized application of theory to elucidating the molecular-level description of liquid-state chemistry, particularly aqueous solutions, as well as the computational treatment of quantum effects in condensed phase chemistry. Areas of application have included, first, biologically relevant solutions, where he has been a major contributor in the area of biopolymer hydration. His work on new computer simulation methods for studying condensed phase photochemistry has emphasized not only the chemistry, but also the interpretation of observable ultrafast transient spectroscopy. Rossky has served on the Editorial Boards of a number of leading chemistry journals, including "Accounts of Chemical Research," "Chemical Physics Letters," "The Journal of Chemical Physics," "The Journal of Physical Chemistry," "The Journal of Chemical Theory and Computation", and "Proceedings of the National Academy of Sciences USA". Recognitions include receipt of the ACS Physical Division Award in Theoretical Chemistry, the ACS Hildebrand Award in the Experimental and Theoretical Chemistry of Liquids, and election as a member of the American Academy of Arts and Sciences and the U. S. National Academy of Sciences.

RESERVATION & COST INFORMATION

**Cocktail Reception, Dinner & Lecture
19 March, 2015 / 6pm - 9pm
Cohen House, Rice University**

Dinner Meeting \$40 per person

**For Reservations call Dale Wilkins: (713) 839-0808
or
Reply to email: dale@amchouston.com**

PRESIDENT'S NOTE

Please do not forget that completed nomination forms for the election of new members to the Society in April must be received prior to the Executive Committee meeting at 5:00p.m., Thursday, March 19. Each nomination requires two sponsors, one of whom must be in the section of the nominee, and each nominee should have attended one meeting as speaker or guest prior to his or her election. The by-laws and nomination forms are on the Society's website at hps.rice.edu

**Jack Agee
President
Houston Philosophical Society**