



2008 International Solvay Chair in Chemistry

Inaugural Lecture

22 April 2008 at 4:00 pm in the Solvay Room

Richard J. Saykally

(Chemistry Department, University of California & Berkeley)

“Water Music: The Latest Word on the Most Important Substance in the Universe”

“As the third most abundant molecule in the Universe, the “universal solvent” in chemistry, and the basis of all life as we know it, water is a uniquely important substance. Nevertheless, our understanding of its fundamental nature remains incomplete, despite enormous efforts. This lecture will review recent advances in this understanding, facilitated by new developments in both experiment and theory. These include laser spectroscopy of water clusters, X-ray and Raman spectroscopy of liquid microjets, and laser spectroscopy of aqueous electrolyte surfaces. Currently debated subjects include the roles of water clusters in the atmosphere, the mechanism of aqueous evaporation, the nature of hydrogen bonding in liquid water, the effects of salts on this hydrogen bond structure (“Hofmeister effects”), the hydration structures of fundamental ions, the surface behavior of aqueous ions, and the pH of the liquid water surface.”



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Lectures

Wednesday 23 April
4:00 pm to 6:00 pm
Solvay room

Lecture 1: *“pH of the Liquid Water Surface: Selective Adsorption of Hydroxide and Hydronium Ions”*



Tuesday 29 April
4:00 pm to 6:00 pm
Solvay room

Lecture 2: *“X-Ray spectroscopy of Liquid Microjets: A New Probe of Ion Hydration”*

Wednesday 30 April
4:00 pm to 6:00 pm
Solvay room

Lecture 3: *“Towards a Universal First Principles Water Model from Terahertz Spectroscopy of Clusters”*



Tuesday 6 May
4:00 pm to 6:00 pm
Solvay room

Lecture 4: *“A Unified Description of Hydrogen Bond Perturbations in Liquid Water and Aqueous Electrolytes: It’s All in the Field!!”*