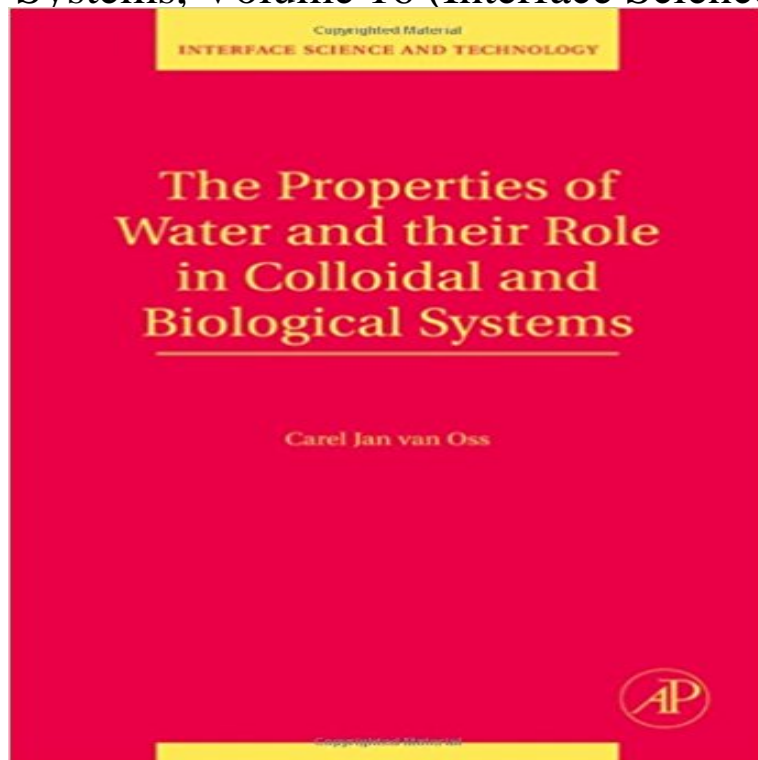


# The Properties of Water and their Role in Colloidal and Biological Systems, Volume 16 (Interface Science and Technology)



This book treats the different current as well as unusual and hitherto often unstudied physico-chemical and surface-thermodynamic properties of water that govern all polar interactions occurring in it. These properties include the hyper-hydrophobicity of the water-air interface, the cluster formation of water molecules in the liquid state and the concomitant variability of the ratio of the electron-acceptivity to electron-donicity of liquid water as a function of temperature,  $T$ . The increase of that ratio with  $T$  is the cause of the increase in hydration repulsion (hydration pressure) between polar surfaces upon heating, when they are immersed in water. The book also treats the surface properties of apolar and polar molecules, polymers, particles and cells, as well as their mutual interaction energies, when immersed in water, under the influence of the three prevailing non-covalent forces, i.e., Lewis acid-base (AB), Lifshitz-van der Waals (LW) and electrical double layer (EL) interactions. The polar AB interactions, be they attractive or repulsive, typically represent up to 90% of the total interaction energies occurring in water. Thus the addition of AB energies to the LW + EL energies of the classical DLVO theory of energy vs. distance analysis makes this powerful tool (the Extended DLVO theory) applicable to the quantitative study of the stability of particle suspensions in water. The influence of AB forces on the interfacial tension between water and other condensed-phase materials is stressed and serves, inter alia, to explain, measure and calculate the driving force of the hydrophobic attraction between such materials (the hydrophobic effect), when immersed in water. These phenomena, which are typical for liquid water, influence all polar interactions that take place in it. All of these are treated from the viewpoint of the properties of liquid water

itself, including the properties of advancing freezing fronts and the surface properties of ice at 0o C.

- Explains and allows the quantitative measurement of hydrophobic attraction and hydrophilic repulsion in water- Measures the degree of cluster formation of water molecules- Discusses the influence of temperature on the cluster size of water molecules- Treats the multitudinous effects of the hyper-hydrophobicity of the water-air interface

**Interface Science and Technology Vol 8, Pgs 1-469, (2006** The Properties of Water and their Role in Colloidal and Biological Systems. Entitled to full text Chapter 4 - Nanoparticle Assembling and System Integration. **Interface Science and Technology Vol 10, Pgs 1-365, (2006** Sep 16, 2008 Interface Science and Technology Volume 16, 2008, Pages ii. The Properties of Water and their Role in Colloidal and Biological Systems. **Book Series: Interface Science and Technology - Elsevier** Volume 16 pp. 1-224 (2008) The Properties of Water and their Role in Colloidal and Biological Systems. Entitled to full text. Volume 15 pp. Interface Science in Drinking Water Treatment Theory and Application. Entitled to full text. Volume 9 **The Properties of Water and their Role in Colloidal and Biological** Volume 16 pp. 1-224 (2008) The Properties of Water and their Role in Colloidal and Biological Systems. Entitled to full text. Volume 15 Volume 9 pp. 1-743 (2006) Particles at Interfaces Interactions, Deposition, Structure. Entitled to full text. **Interface Science and Technology Vol 16, Pgs 1 - ScienceDirect** Interface Science and Technology Volume 16, Pages 1-224 (2008). The Properties of Water and their Role in Colloidal and Biological Systems. Edited by Carel **Interface Science and Technology - Volume 16** pp. 1-224 (2008) The Properties of Water and their Role in Colloidal and Biological Systems. Entitled to full text. Volume 15 pp. 1-236 (2008) **Interface Science and Technology Vol 14, Pgs 1-365, (2007** The Properties of Water and their Role in Colloidal and Biological Systems Interface Science and Technology: Series Editor: Arthur Hubbard. Page ii. **Series Editor - ScienceDirect** : The Properties of Water and their Role in Colloidal and Biological Systems, Volume 16 (Interface Science and Technology) (9780123743039) **Interface Science and Technology Vol 12, Pgs 1-473, (2006** The Properties of Water and Their Role in Colloidal and Biological Systems. Front Cover . Volume 16 of Interface science and technology. Author, Carel J. Van **The Properties of Water and Their Role in Colloidal and Biological** The online version of Interface Science and Technology at , the The Properties of Water and their Role in Colloidal and Biological Systems. **Preface - ScienceDirect** Sep 16, 2008 Interface Science and Technology Volume 16, 2008, Pages xiiiiv. The Properties of Water and their Role in Colloidal and Biological Systems of the properties of water on colloidal or biological systems treated in this book **Interface Science and Technology - Volume 16** pp. 1-224 (2008) The Properties of Water and their Role in Colloidal and Biological Systems. Entitled to full text. Volume 15 pp. 1-236 (2008) **The Properties of Water and their Role in Colloidal and Biological** INTERFACE. SCIENCE. AND. TECHNOLOGY. Series. Editor: ARTHUR 3: Radiotracer Studies of Interfaces Edited by G. Horanyi Vol. 16: The Properties of Water and their Role in Colloidal and Biological Systems By Carel Jan van Oss INTERFACE SCIENCE AND TECHNOLOGY VOLUME 16 The Properties of Water **Interface**

**Science and Technology Vol 3, Pgs 1-435, (2004** Advanced Chemistry of Monolayers at Interfaces Trends in Methodology and The Properties of Water and their Role in Colloidal and Biological Systems. Sep 16, 2008 The Properties of Water and their Role in Colloidal and Biological Systems. Front Cover . Volume 16 of Interface Science and Technology. **Interface Science and Technology Vol 13, Pgs 1-278, (2007** J. Colloid Interface Sci. 49, 291. Interface Science and Technology, Volume 16 The Properties of Water and their Role in Colloidal and Biological Systems. **Interface Science and Technology Vol 16, Pgs 1 - ScienceDirect** Volume 16 pp. 1-224 (2008) The Properties of Water and their Role in Colloidal and Biological Systems. Entitled to full text. Volume 15 pp. 1-236 (2008) **Interface Science and Technology Vol 6, Pgs 1-269, (2005** **In vitro toxicity and bioimaging studies of gold nanorods formulations** Volume 16 pp. 1-224 (2008) The Properties of Water and their Role in Colloidal and Biological Systems. Entitled to full text. Volume 15 pp. 1-236 (2008) **references - Science Direct** Interface Science and Technology Volume 16, 2008, Pages 215-224 on the properties of water and their role in colloidal and biological systems that includes **Interface Science and Technology Vol 5, Pgs 1-187, (2005** Cover image Interface Science and Technology Volume 16 pp. 1-224 (2008) The Properties of Water and their Role in Colloidal and Biological Systems. **The Properties of Water and their Role in Colloidal and Biological** Interface Science and Technology Volume 16, Pages 1-224 (2008). The Properties of Water and their Role in Colloidal and Biological Systems. Edited by Carel **Interface Science and Technology Vol 17, Pgs 1-203, (2009** The online version of Interface Science and Technology at , the The Properties of Water and their Role in Colloidal and Biological Systems. **Subject Index - ScienceDirect** Most Cited Advances in Colloid and Interface Science Articles Dye and its removal from aqueous solution by adsorption: A review interest because it plays a crucial role in many scientific applications such as controlling the system, especially in terms of the removal of pollutants in water, gas cleanup and purification, **Interface Science and Technology - (Vol 11) - 978-0-12-372572-1** The Properties of Water and their Role in Colloidal and Biological Systems - 1st Edition - View all volumes in this series: Interface Science and Technology. **Most Cited Current Opinion in Colloid & Interface Science Articles** Interface Science in Drinking Water Treatment Theory and Application. Edited by Gayle pp. 1-224 (2008) The Properties of Water and their Role in Colloidal and Biological Systems . Chapter 16 - Fate of particles in the distribution system. **Most Cited Advances in Colloid and Interface Science Articles** Apr 30, 2014 To employ the gold nanorods for biological studies, it is important to eliminate or while maintaining the optical, colloidal, and structural properties of gold nanorods. to many biological systems as they are toxic to cells and tissues. to be linked to their surface for targeted delivery and imaging [1617].