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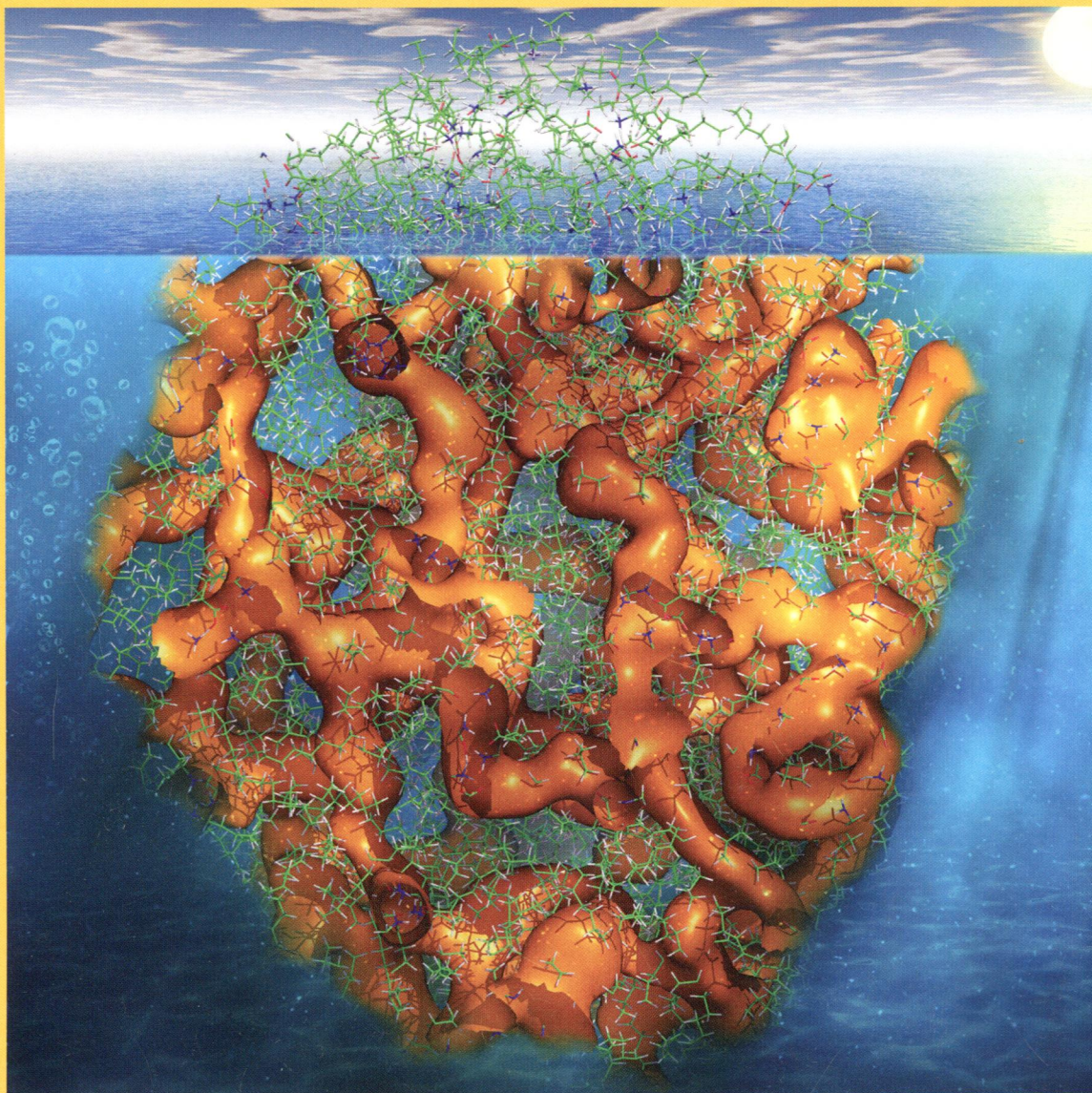
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B

Network of
Charge-Alternating
Hydrogen Bonds
Renders Protic
Ionic Liquid
Bicontinuous
(see page 12706)



BIOPHYSICAL CHEMISTRY, BIOMATERIALS, LIQUIDS, AND SOFT MATTER



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ON THE COVER: A continuously percolating network of hydrogen bonds divides certain protic ionic liquids (ILs) into intertwined polar and apolar regions. The orange filaments depicted in the cover art enclose the charge-alternating hydrogen bond network that renders the liquid bicontinuous. This ordering gives rise to a first sharp diffraction X-ray peak. Decorating the surface of polar filaments, and in sync with charge alternation, cationic and anionic tails must also alternate. This alternation defines yet a new intermediate length scale order that depending on the specific chemical nature of cationic and anionic tails (alkyl or fluorinated) results in organized chemical environments. The cover art is meant to depict the tip of an "IL-berg" where detailed theoretical and computational analyses were used to finally shed light on the complex nature of its structural landscape. See page 12706.

Articles

Biophysical Chemistry and Biomolecules

- 12577  DOI: 10.1021/jp504011c
pH-REM Simulations Indicate That the Catalytic Aspartates of HIV-1 Protease Exist Primarily in a Monoprotonated State
T. Dwight McGee Jr., Jesse Edwards, and Adrian E. Roitberg*
- 12586  DOI: 10.1021/jp506239p
Membrane-Embedded Nanoparticles Induce Lipid Rearrangements Similar to Those Exhibited by Biological Membrane Proteins
Reid C. Van Lehn and Alfredo Alexander-Katz*
- 12599 DOI: 10.1021/jp507886r
Role of Anisotropic Interactions for Proteins and Patchy Nanoparticles
Christopher J. Roberts* and Marco A. Blanco
- 12612  DOI: 10.1021/jp507930e
ATP-Induced Conformational Changes of Nucleotide-Binding Domains in an ABC Transporter. Importance of the Water-Mediated Entropic Force
Tomohiko Hayashi, Shuntaro Chiba, Yusuke Kaneta, Tadaomi Furuta, and Minoru Sakurai*
- 12621 DOI: 10.1021/jp508046y
Macromolecular Crowding Effects on Coupled Folding and Binding
Young C. Kim,* Apratim Bhattacharya, and Jeetain Mittal

12630 **S**

DOI: 10.1021/jp510037c

An Experimental and Computational Investigation into the Gas-Phase Acidities of Tyrosine and Phenylalanine: Three Structures for Deprotonated Tyrosine

Samantha S. Bokatzian, Michele L. Stover, Chelsea E. Plummer, David A. Dixon,* and Carolyn J. Cassidy*

12644

DOI: 10.1021/jp5102225

Proton Release from the Histidine-Tetrad in the M2 Channel of the Influenza A Virus

Hao Dong, Giacomo Fiorin, William F. DeGrado, and Michael L. Klein*

Biomaterials, Surfactants, and Membranes

12652

DOI: 10.1021/jp506840e

Solvent-Induced Crystallization Behaviors of PLLA Ultrathin Films Investigated by RAIR Spectroscopy and AFM Measurements

Ningjing Wu,* Shuguo Lang, Hong Zhang, Meichun Ding, and Jianming Zhang

12660 **S**

DOI: 10.1021/jp506965v

Gigaseal Mechanics: Creep of the Gigaseal under the Action of Pressure, Adhesion, and Voltage

Radmir I. Slavchov,* Takeshi Nomura, Boris Martinac, Masahiro Sokabe, and Frederick Sachs

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DOI: 10.1021/jp507919p

Local Pressure Changes in Lipid Bilayers Due to Adsorption of Melittin and Magainin-h2 Antimicrobial Peptides: Results from Computer Simulations

Ardeshir Goliaei, Kolattukudy P. Santo, and Max L. Berkowitz*

Liquids; Chemical and Dynamical Processes in Solution

12680 **S**

DOI: 10.1021/jp506786m

Photophysics and Rotational Diffusion of Hydrophilic Molecule in Polymer and Polyols

Aninda Chatterjee, Banibrata Maity, Sayeed Ashique Ahmed, and Debabrata Seth*

12692 **S**

DOI: 10.1021/jp5065243

Excess Enthalpies of Mixing, Effect of Temperature and Composition on the Density, and Viscosity and Thermodynamic Properties of Binary Systems of {Ammonium-Based Ionic Liquid + Alkanediol}

Urszula Domańska,* Paulina Papis, Jerzy Szydłowski, Marta Królikowska, and Marek Królikowski

12706 **S**

DOI: 10.1021/jp5068457

Bicontinuity and Multiple Length Scale Ordering in Triphilic Hydrogen-Bonding Ionic Liquids

Jeevapani J. Hettige, Juan Carlos Araque, and Claudio J. Margulis*

12717 DOI: 10.1021/jp507376v
Effect of Electric Field Orientation on the Mechanical and Electrical Properties of Water Ices: An Ab-initio Study
Giuseppe Cassone,* Paolo V. Giaquinta,* Franz Saija,* and A. Marco Saitta*

12725 DOI: 10.1021/jp507727v
Features of the Thermodynamics of Trivalent Lanthanide/Actinide Distribution Reactions by Tri-*n*-octylphosphine Oxide and Bis(2-ethylhexyl) Phosphoric Acid
Travis S. Grimes, Peter R. Zalupski, and Leigh R. Martin*

12734 DOI: 10.1021/jp507949h
Temperature-Dependent Solubility Transition of Na₂SO₄ in Water and the Effect of NaCl Therein: Solution Structures and Salt Water Dynamics
Pankaj Bharmoria, Praveen Singh Gehlot, Hariom Gupta, and Arvind Kumar*

12743 DOI: 10.1021/jp5084357
Nonparametric Estimates of Drift and Diffusion Profiles via Fokker–Planck Algebra
Steven P. Lund,* Joseph B. Hubbard,* and Michael Halter*

Glasses, Colloids, Polymers, and Soft Matter

12750 DOI: 10.1021/jp506155p
Structure and Topology of Soda-Lime Silicate Glasses: Implications for Window Glass
O. Laurent, B. Mantis, and M. Micoulaut*

12763 DOI: 10.1021/jp5062607
Effect of Molecular Properties of Random Copolymers on the Stability and Domain Dimension of Block Copolymer/Random Copolymer Blends
Chieh-Tsung Lo* and Po-Wei Chou

12772 DOI: 10.1021/jp506381z
One-Dimensional Self-Assembly of Polyaromatic Compounds Revealed by Molecular Dynamics Simulations
Cuiying Jian and Tian Tang*

12781 DOI: 10.1021/jp507617t
Ion Permeability of Polydopamine Films Revealed Using a Prussian Blue-Based Electrochemical Method
Bowen Gao, Lei Su,* Ying Tong, Miao Guan, and Xueji Zhang*

12788 DOI: 10.1021/jp508212f
Synthesis and Controlled Self-Assembly of UV-Responsive Gold Nanoparticles in Block Copolymer Templates
Dong-Po Song, Xinyu Wang, Ying Lin, and James J. Watkins*
