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Nota di contenuto	Part I: Overview -- 1. Overview of Liquids and Liquid-Based Systems -- Part II. Basic Properties of Liquids: Structure and Dynamics -- 2. Multiscale solvation theory of nano and biomolecules -- 3. Dynamics of Molecular Liquids: From water to Ionic Liquids -- 4. Neutron and X-ray scattering of water at extreme conditions - confinement and high pressure -- 5. Solvation Thermodynamics based on Molecular Theory of Solution -- 6. Dynamics in aqueous and non-aqueous binary mixtures -- 7. Intermolecular vibrations in aprotic molecular liquids -- Part III: Ionic Liquids -- 8. Mixing states of ionic liquid-molecular liquid mixed solvents and their effects on metal complex formation -- 9. TBD -- 10. Microscopic structure and dynamics in ionic liquids molecular solvent mixtures: Spectroscopy and molecular modelling -- Part IV:

Liquid-Based Systems: Biosystems to Soft Materials -- 11. Computational and experimental screening of polymer precursors for preparation of molecularly imprinted polymers -- 12.Solvation-induced changes in the morphology of amphiphilic polymers in solution -- 13. TBD -- 14. Mesoscale ordering in water/organic solvent/antagonistic salts mixtures -- 15. Physical organogels: Functions governed by interactions between gelators and solvents -- Part V: Future Perspective -- 16. Future perspective of liquids and related materials.

Sommario/riassunto

This book sheds light on the molecular aspects of liquids and liquid-based materials such as organic or inorganic liquids, ionic liquids, proteins, biomaterials, and soft materials including gels. The reader discovers how the molecular basics of such systems are connected with their properties, dynamics, and functions. Once the use and application of liquids and liquid-based materials are understood, the book becomes a source of the latest, detailed knowledge of their structures, dynamics, and functions emerging from molecularity. The systems discussed in the book have structural dimensions varying from nanometers to millimeters, thus the precise estimation of structures and dynamics from experimental, theoretical, and simulation methods is of crucial importance. Outlines of the practical knowledge needed in research and development are helpfully included in the book.