

Membrane Hydration

Crowding, Signal Propagation, and Biological Functions

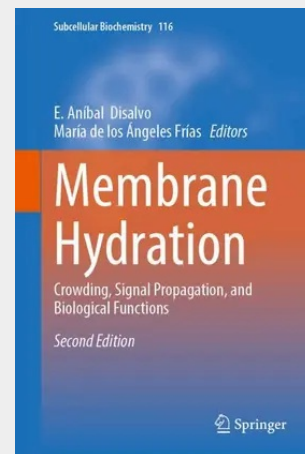
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The main topics include the analysis of the distribution of water populations at the membrane of different composition introducing and discussing the difference between interfaces and interphases on thermodynamic backgrounds.

The emergent thermodynamic and dynamic picture arising from these arrangements, the configuration of specific regions, such domains and defects, that may catalyze the binding of biologically relevant compounds, and the role of water in signal propagation are relevant topics in this edition.

Within this approach, the impact of cholesterol on the structuring of water in membranes, followed by advanced spectroscopic methodologies and molecular dynamics is also highlighted. Finally, the book examines the thermodynamic contributions of water to nerve impulses and the importance of hydrogen bonds in complex environments challenging the classical models of membranes. Bringing together experimental, computational, and theoretical perspectives, this book is an invaluable resource for understanding and evaluating how the properties of water shape essential biological functions, offering new insights for biophysicists and chemists interested in the molecular basis of life.

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