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Editors

Soft Matter Systems for Biomedical Applications

 Springer

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Preface

This volume comprises the peer-reviewed papers and reviews related to biomedical applications of soft matter systems. Initially, these papers were planned to be presented at the International Conference “Physics of Liquid Matter: Modern Problems” (PLMMP-2020) in May 2020 in Kiev, Ukraine. However, due to the COVID-19 pandemic the PLMMP Conference was shifted to May 2022. The collected papers highlight latest research trends and include contributions from global experts in the field. The book contains 15 chapters, and the content is divided into four parts that include considerations of fundamentals of soft matter systems, mechanisms and molecular interactions, magnetic field effects, and biomedical applications of nanosystems and nanomaterials. Particularly, the water contribution to the protein folding, dynamics of biological water, recent data on modeling and experiments of bio-liquids, behavior of lyotropic liquid crystal phases of phospholipids, and colloidal particles in confined and deformed nematic liquid crystals have been reviewed. Book content also includes analysis of intermolecular interactions and effects of magnetic fields in biosciences. Biomedical applications of smart polymer-based multicomponent nanosystems and of Laponite®-based nanomaterials and formulations have been also presented. We hope that this volume will stimulate further research in all these areas.

Leonid Bulavin
Nikolai Lebovka

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