



Towards Autonomous Soft Matter Systems: Experiments on Membranes and Active Emulsions

By Shashi Thutupalli

Springer International Publishing AG. Hardback. Book Condition: new. BRAND NEW, Towards Autonomous Soft Matter Systems: Experiments on Membranes and Active Emulsions, Shashi Thutupalli, This book focuses on the assembly, organization and resultant collective dynamics of soft matter systems maintained away from equilibrium by an energy flux. Living matter is the ultimate example of such systems, which are comprised of different constituents on very different scales (ions, nucleic acids, proteins, cells). The result of their diverse interactions, maintained using the energy from physiological processes, is a fantastically well-organized and dynamic whole. This work describes results from minimal, biomimetic systems and primarily investigates membranes and active emulsions, as well as key aspects of both soft matter and non-equilibrium phenomena. It is shown that these minimal reconstitutions are already capable of a range of complex behaviour such as nonlinear electric responses, chemical communication and locomotion. These studies will bring us closer to a fundamental understanding of complex systems by reconstituting key aspects of their form and function in simple model systems. Further, they may also serve as the first technological steps towards artificial soft functional matter.



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