Frontiers of Macromolecular Science

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This book is the scientific proceedings of the 32nd International Symposium on Macromolecules (MACRO 88), held under the auspices of the International Union of Pure and Applied Chemistry, in Kyoto, Japan. It describes the current status of the progress of polymer science research. In addition to fundamental chemistry and physics of polymer science, high performance polymers and functional polymers, which are essential bases of the so-called 'advanced technologies' are emphasised in this book.

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Frontiers of Macromolecular and Supramolecular Science is the name given to a symposium series created in 2008, under the name Frontiers of Macromolecular Science, and continued under the new extended name. This symposium is based only on invited plenary speakers and is held under the auspices of the Romanian Academy of Science, to celebrate the life and achievements of Professor Christofor I. Simionescu, who was Director of the Petru Poni Institute of Macromolecular Chemistry in Iasi, Romania, for 30 years (1970–2000). Importantly, participating plenary speakers have included the leaders of macromolecular science from the USA, Europe, and Asia. We discuss a quantitative influence of macromolecular crowding on biological processes: motion, bimolecular reactions, and gene expression in prokaryotic and eukaryotic cells. We present scaling laws relating diffusion coefficient of an object moving in a cytoplasm of cells to a size of this object and degree of crowding. Such description leads to the notion of the length scale dependent viscosity characteristic for all living cells.

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