Coarse-Grained Approaches to Molecular Structure Formation

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In this talk, results of different studies of coarse-grained polymers and their structural behavior, which have been obtained by means of sophisticated Monte Carlo computer simulations, are presented. More precisely, the collapse from the random coil conformation to the crystalline ground state of flexible, elastic polymers, structural transitions of tube polymers and, very recently, polymers adsorbed on nanostrings are studied.