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Modern methods for computational modeling of polymers

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The goal of this minisymposium is to explore recent computational approaches to the developing, studying and understanding of polymers. Young researchers will have the opportunity to present their important studies and findings in this field of research. The design and manufacture of innovative elastomers and thermoplastics, such as hydrogels, rubber or nanocomposites, is a challenging task. In fact, many classical methods are time and cost consuming. Thus, it is useful to replace them by computational methods enabling faster and potentially even more accurate advancements of polymers. Regarding these aspects, multiscale FEM, phase-field method, molecular dynamics simulations and elastic network models for complex physical phenomena have become essential tools for the analysis of polymer materials. These computational approaches can be helpful in the characterization of properties and provide explanations for experimentally observed structural, thermodynamic, microscopic and macroscopic material behavior.