Dear Readers!

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We introduce to you a special issue of *Polymer Science, Series C* devoted to polymeric nanocomposites.

Tens of thousands of scientific articles, books, reviews, and patents have been published under the main topic of polymeric composites, but the interest of researchers in this field remains at a consistently high level.

The cause of this phenomenon is that polymer composites and, more recently, nanocomposites have become an essential part of modern materials science. They possess obvious advantages, such as low weight, corrosion resistance, high fatigue strength, and high-speed processability. Polymer composites are extensively used as starting materials to create a huge number of products and articles for practical use.

With an abundance of information available, it is almost impossible to highlight what is most important in this field. More likely, one can talk only about the main trends of research in the near future. A discussion of some of them was the purpose of preparing this special issue of the journal.

The articles written by leading Russian scientists consider polymer composites of both engineering and functional purposes. In all cases, the behavior of materials is interpreted on the basis of a combination of a

“functional filler” (reinforcing elements, nanoparticles, etc.), the polymer matrix, and the filler/matrix interface properties.

Interestingly, in such a filler–matrix–interface triad, all participants act as equal partners that not only are present in the system but also play an active role by taking part in the chemical, electrostatic, and other specific interactions. It may be assumed that, by managing such specific interactions, researchers will be able to obtain new interesting results in the development of composite materials in the near future. It is hard to imagine that such a complex and comprehensive interaction mechanism can be explored and described without the involvement of multiscale modeling, the challenges and prospects of which are discussed in some of the published articles.

This issue is intended for students, graduate students, academic researchers, and practitioners in the field of polymer materials science and engineering so that they have a glimpse into the fascinating world of polymer composites. We are grateful to all the authors, reviewers, and editorial staff members who took part in the preparation of this issue.

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