



gels



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New Era in the Volume Phase Transition of Gels

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Message from the Guest Editors

The theory of the volume phase transition of gels, which was proposed in the early stage of these studies, is constructed on the basis of analogy with the liquid–gas transition of a van der Waals gas, where the gas phase and the liquid phase correspond to the swelling state and the collapsed state of gel, respectively. This theory adequately demonstrates the universality of the volume phase transition of the gel and can be easily understood by a general audience. Consequently, such a depiction of the volume phase transition of the gel has been widely disseminated. From a scientific point of view, however, it is clearly an oversimplification. The crucial point is that the gel consists of a polymer network and solvent. In other words, the gel usually consists of at least two components, a solute and a solvent. On the other hand, the van der Waals gas is a single-component system consisting only of gas molecules. We believe it is time to revisit the volume phase transition of gels in marking a possible second beginning of a new era in the science of gels. The submission of both theoretical and experimental studies is welcome.



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Special Issue



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Message from the Editorial Board

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