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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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Message from the Editor-in-Chief

Gels (ISSN 2310-2861) is recently established international, open access journal on physical and chemical gel-based materials. The journal aim is to encourage scientists to publish their experimental and theoretical results in as much detail as possible. General topics include but not limited to synthesis, characterization and applications of new organogels, hydrogels and ionic gels made either from low molecular weight compounds or polymers, composite and hybrid materials where a metal is by some means incorporated into the gel network, and computational studies of these materials in order to provide a better understanding of gelation mechanism. We cordially invite you to consider publishing with us and contribute with your own grain of sand to the advance in this fascinating field.

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