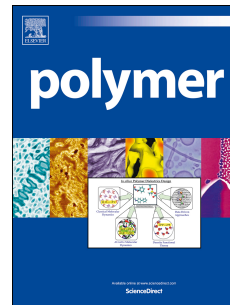


# Accepted Manuscript

The glass formation of a repulsive system with also a short range attractive potential:  
A re-interpretation of the free volume theory

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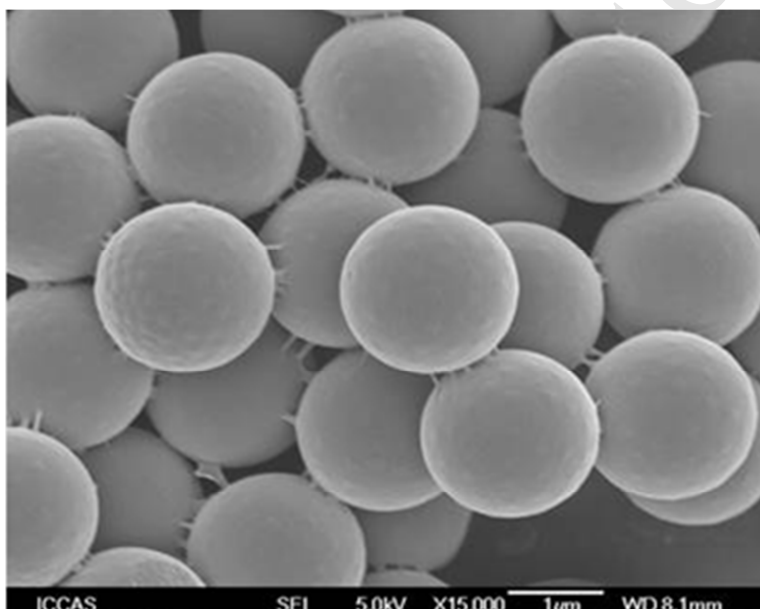
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**Abstract:** In this feature article, we first make some simple reviews about the most popular theories for glass transition: 1) Free volume theory, 2) Entropy theory, 3) Götze Mode coupling theory, and 4) Caging and Jamming theory. We address the issue of existing studies of glass transformations. Then, we review some special colloidal/polymer model systems which can give a repulsive potential together with an attractive potential and also large enough and slow enough, so we can study the structure (through microscopy and scattering techniques) and dynamics (mainly through rheology) change as a function of temperature and volume fraction. We hope, this paper, with the study to explore the structural and dynamics along the path toward the equilibrium, can provide some information, stimulation, incentive, and guidance for future theoretical and experimental studies for glass transition of structural materials, especially for polymers, colloids and colloid/polymer systems.



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