**Spherical Packing Phases of Block Copolymers**

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Recent experimental and theoretical studies have demonstrated that complex spherical packing phases, such as the Frank-Kasper phases and quasicrystals, could form from block copolymers as stable or metastable phases. We have examined the emergence and stability of complex spherical packing phases in block copolymer systems using the self-consistent field theory. Our study reveals that one key mechanism of forming complex spherical phases from block copolymers is the conformational asymmetry of the blocks. Furthermore, we predicted that the segregation of different polymeric species in block copolymer blends provides another mechanism to stabilize spherical packing phases with very different sized-spherical domains. Lessons learned from the study of block copolymers provide insights to understand the formation of various spherical packing phases in soft matter.