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**The Effect of Charged Macromolecules on the Crystallization of Ionic Solutes during Solution Evaporation** SEYOUNG KIM, JEWON CHOI, Seoul National University, SOO-HYUNG CHOI, Hongik University, KOOKHEON CHAR, Seoul National University — Charged macromolecules are crucial components in bio-mimetic crystallization as they modify size, shape, and the phase of ionic minerals, since the electrostatic binding between charged molecules and ionic mineral surface alters the surface energy in a specific crystallographic direction. We use poly(acrylic acid) (PAA) and block copolymer micelles (BCMs) containing polystyrene (PS) cores and PAA brushes as modifiers of  $\text{CaSO}_4$  hemihydrate crystals, which are grown through the evaporation of solution droplets. The evaporation at the air-liquid interfaces directs the nucleation and growth of crystallization to proceed locally near the interface. The addition of linear PAAs or spherical BCMs with the crystallizing mineral varied the dominant facet as well as the aspect ratio of the crystals. For the linear PAAs added, it is noted that the interference of crystallization becomes weak as the length of PAA is increased, while, for the BCMs added, the interference becomes weak as the ratio of PAA to PS blocks is decreased. Hence, the modification of crystal growth of minerals is largely dependent upon the bulkiness of charged objects, i.e., the conformational constraint of charged chains for the surface adsorption.

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