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Dynamics in weakly-ordered oppositely-charged polyelectrolyte complex gels ANAND RAHALKAR, GUANGMIN WEI, National Institute of Standards and Technology, SAMANVAYA SRIVASTAVA, MATTHEW TIRRELL, University of Chicago, VIVEK PRABHU, National Institute of Standards and Technology — Polyelectrolyte complexes (PEC) formed by ABA block copolymers form well-defined ordered phases through design of the block fraction, added salt, and polymer concentration. This tailored structure offers many opportunities for materials design through charge complexation. In this presentation, we extend our efforts to understand the dynamics in weakly-ordered PEC gels. We find that the formation of an equilibrium between micelles and clusters in the dilute phase provides insight into multiple relaxation modes observed in PEC gels by angular-dependent dynamic light scattering. Combining these results with small-angle neutron scattering, we establish the structure and dynamics on the temperature-composition plane for the model system of guanidinium and sulfonate functionalized poly(allyl glycidyl ether) end blocks with poly(ethylene glycol) middle block.

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