

MAR17-2016-001975

Abstract for an Invited Paper
for the MAR17 Meeting of
the American Physical Society

Rheology of polyelectrolyte complex materials¹

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Fluid polyelectrolyte complexes, sometimes known as complex coacervates, have rheological properties that are very sensitive to structure and salt concentration. Dynamic moduli of such viscoelastic materials vary many orders of magnitude between solutions of no added salt to of order tenth molar salt, typical, for example of physiological saline. Indeed, salt plays a role in the rheology of complex coacervates analogous to that which temperature plays on polymer melts, leading to an empirical observation of what may be termed time-salt or frequency salt superposition. Block copolymers containing complexing ionic blocks also exhibit strong salt sensitivity of their rheological properties. Data representing these phenomena will be presented and discussed.

¹Support from NIST, Department of Commerce, via the Center for Hierarchical Materials Design at Northwestern University and the University of Chicago is gratefully acknowledged.