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Pattern Formation in Drying Drops of Polyelectrolyte - Salt Solutions DENIZ KAYA, Department of Physics, University of Massachusetts,Amherst, VLADIMIR A BELYI, M MUTHUKUMAR, Polymer Science and Engineering Department, University of Massachusetts, Amherst — We use optical microscopy, AFM, and SEM to investigate salt patterns formed during evaporation of aqueous solutions of sodium poly(styrene sulfonate) and sodium chloride (NaPSS/NaCl). Observed patterns exhibit significantly larger variety than in the simple "drying coffee drop" experiments. We find that varying the concentration ratios of polyelectrolyte/salt solutions leads to formation of qualitatively different patterns, including radially grown salt deposits, concentric rings of salt and other structures. Our results indicate that these patterns are also sensitive to evaporation rate of the droplet. However molecular weight of the polymer appears to have little to no effect on the observed patterns.

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