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Persistence length of a linear polyelectrolyte in the presence of salt WEI QU, ERIK LUIJTEN, Northwestern University — The conformational behavior of polyelectrolytes is important in various contexts, including the self-assembly behavior of biopolymers and their properties under confinement. A key parameter is the persistence length, which quantifies the rigidity of the polyelectrolyte. Despite much study, a debate exists about the dependence of the electrostatic persistence length on the Debye screening length. Since most theories and simulation studies treat the electrostatic interaction via the Debye–Hückel potential, a mean-field approximation, these may not fully resolve the role of salt concentration. In this study, we simulate a polyelectrolyte with *explicit* counterions and salt. The response of the persistence length to variation in ionic strength is compared to the Odijk–Skolnick–Fixman theory.

Wei Qu
Northwestern University

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