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Abstract for an Invited Paper
for the DFD07 Meeting of
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Lattice-Boltzmann simulations of flexible and semi-flexible polymers in solution¹

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I will describe ongoing research into the development of numerical methods to simulate the dynamics of polymer solutions. Our work is based on a fluctuating lattice Boltzmann model (FLBM), which can account for both the dissipative and correlated random forces between chain segments. I will outline a new approach to the FLBM, which emphasizes its statistical mechanical foundation. Polymer solutions can be most conveniently modeled as connected point particles, and I will present results for different methods to capture the polymer-fluid coupling. Finally, I will outline how the algorithm may be extended to semi-flexible polymers.

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