Chain dynamics in a semidilute polymer solution under steady shear PRASANTH JOSE, GRZEGORZ SZAMEL, Department of Chemistry, Colorado State University, Fort Collins, CO 80523 — We performed a series of Brownian dynamics simulations of sheared semidilute solutions of relatively short polymer chains and found that incomplete cancellation of intra and inter chain contributions to the steady state structure factors leads to anisotropic patterns that resemble those observed in light scattering experiments on sheared semidilute solutions (J. Chem. Phys. 127, 114905(2007)). Here we investigate the changes in the single-chain dynamics in sheared semidilute solutions. We study the shear-rate dependence of the end-to-end vector relaxation, Rouse modes' dynamics, etc. We correlate the changes in the chain dynamics with shear rate dependence of the anisotropic scattering patterns and shear thinning of the solution viscosity.

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