

Abstract Submitted
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Dynamics of a DNA Gel RAMESH ADHIKARI, ANIKET BHATTACHARYA, ARISTIDE DOGARIU, University of Central Florida — We study *in silico* the properties of a gel consisting of DNA strands (modeled as semi-flexible chains) and linkers of varying flexibility, length, and topology. These linkers are envisioned and modeled as active components with additional attributes so as to mimic properties of a synthetic DNA gel containing motor proteins. We use Brownian dynamics to directly obtain frequency dependent complex shear moduli of the gel. We further carry out force spectroscopy on these computer generated gels and study the relaxation properties as a function of the important parameters of the model, *e.g.*, densities and relative ratios of the DNAs and the linkers, the average life time of a link, etc. Our studies are relevant for designing synthetic bio-materials for both materials and medical applications.

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