

Abstract Submitted  
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**Stretching semiflexible filaments with quenched disorder**<sup>1</sup> PANAYOTIS BENETATOS, EUGENE M. TERENTJEV, Cavendish Laboratory, University of Cambridge, UK — Many biopolymers, such as DNA, are characterized by sequence heterogeneity. At large scales, this heterogeneity may behave as a quenched random variable. We consider a wormlike chain with uncorrelated quenched disorder in its arc-length dependent spontaneous curvature. In the weakly bending approximation, we obtain analytic results for the elastic response to a stretching force applied at its end-points. We show that the effect of quenched disorder does not always reduce to a simple renormalization of the bending stiffness of the pure system. We also discuss a formally similar disordered system where a stretched wormlike chain is subject to random uncorrelated transverse forces.

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