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**Competition of Elasticity and Flexoelectricity for bistable alignment of nematics on patterned substrates** TIMOTHY ATHERTON, JAMES ADLER, Tufts University — We show that patterned surfaces can promote bistable configurations of nematics for reasons other than the symmetry of the surface. Numerical and analytical calculations reveal that a nematic liquid crystal in contact with a striped surface is subject to the competing aligning influences of elastic anisotropy, differing energy cost of various types of deformation, and flexoelectricity, curvature-induced spontaneous polarization. These effects favor opposing ground states where the azimuthal alignment is, respectively, parallel or perpendicular to the stripes. Material parameters for which the effect might be observed lie within the range measured for bent-core nematogens.

Timothy Atherton  
Tufts University

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