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Cones and Anticones: Spontaneous Mechanical Response of Disclinations in Nematic Glasses CARL MODES, University of Cambridge, KAUSHIK BHATTACHARYA, California Institute of Technology, MARK WARNER, University of Cambridge — Nematic elastomers and glasses respond strongly to changes in ambient heat or light, and the response along the director differs significantly from that in the normal directions. This phenomena is well characterized for simple nematic director fields, less so for more complicated textures. We analytically examine the elastic ground states of a nematic glass in the membrane approximation as a function of temperature for some of these more complicated director fields. In particular, we are interested in textures arising from disclination defects with an eye towards fabricating three-dimensional shapes from flat sheets of material, at the nano-scale all the way to macroscopic objects.

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