

Abstract Submitted  
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**Stretching and twisting of colloidal membranes**<sup>1</sup> THOMAS POWERS, LEROY JIA, ROBERT PELCOVITS, Brown University — Colloidal membranes consisting of rod-like virus particles held together by the depletion force form flat circular disks in the presence of a suitable concentration of polymer depletants. When subject to external forces, the disks transform into twisted ribbons. Making the assumption that the bending stiffness of the membrane is large, and therefore that the membrane has the shape of a minimal surface, we calculate the shape of the membrane as a function of applied force. Liquid crystalline degrees of freedom are accounted for using geometric properties of the edge such as length, curvature, and geodesic torsion.

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