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Fracture on Curved Surfaces NOAH MITCHELL, University of Chicago, VINZENZ KONING, VINCENZO VITELLI, Leiden University, WILLIAM T.M. IRVINE, University of Chicago — When an elastic film conforms to a surface with Gaussian curvature, stresses arise in the film. As a result, cracks—typically studied in flat materials—interact with curvature when propagating through the system. Using silicone elastomer sheets that conform to the surface of a Gaussian bump, we find experimental evidence for the deflection of a crack propagating through the material. We interpret our experiments with reference to analytical modeling and simulations of a simplified model system.

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