

Abstract Submitted  
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**Universal Shapes of Interacting Mode-I Cracks** MELISSA FENDER, FREDERIC LECHENAULT, Dept. of Physics, North Carolina State University, PEDRO REIS, Dept. of Mathematics, MIT, BENOIT ROMAN, P.M.M.H, UMR 7636 CNRS/ESPCI/Paris6/Paris7, KAREN DANIELS, Dept. of Physics, North Carolina State University — We experimentally investigate the interaction between two parallel cracks propagating towards each other under uniaxial traction in quasi-2D slabs of gelatin. A single crack would propagate perpendicular to the direction of traction. However, after they pass each other, the two cracks rotate and ultimately meet, leaving behind a lens-shaped remnant. We find a universal length-to-width ratio for this remnant, independent of the pulling speed and initial crack separation; the same phenomenon is observed in a variety of elastic materials. Moreover, the overall dimensions of the lens-shaped remnant are set by the initial crack separation.

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