

Abstract Submitted
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Adhesion Induced Instability in Thin Polymer Films MANOJ CHAUDHURY — Geometric confinement strongly influences the adhesion and fracture of soft elastic films. Aided by external force, confined elastic films develop undulations almost instantaneously and instability patterns appear in the form of cavitations and fingers at the interface. The characteristic wavelength of the instability is remarkably insensitive to the materials properties of the system except the thickness of the film. Geometric confinement and its relief via pattern formation shed light on the mechanism of adhesion of various thin film adhesives. In particular, when discontinuities are generated on the films via incisions, the length scale of the instability dictate to which the incised segments communicate with each other via shear field. This information is useful in the design of the adhesives that mimic the behavior of those found in biological world. .

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