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How Geometry Controls the Tearing of Adhesive Thin Films on Curved Surfaces

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Flaps can be detached from a thin film glued on a solid substrate by tearing and peeling. For flat substrates, it has been shown that these flaps spontaneously narrow and collapse in pointy triangular shapes. Here we show that various shapes, triangular, elliptic, acuminate or spatulate, can be observed for the tears by adjusting the curvature of the substrate. From combined experiments and theoretical models, we show that the flap morphology is governed by simple geometric rules.

Comments: 6 pages, 5 figures

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> Science (cond-mat.mtrl-sci); Adaptation and Self-Organizing Systems (nlin.AO); Pattern Formation and

Solitons (nlin.PS)

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