Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Snap-through instabilities of curved folds on curved, polymer shells[1] CHRISTIAN SANTANGELO, NAKUL BENDE, Univ of Mass - Amherst, SARAH INNES-GOLD, Tufts University, ART EVANS, Univ of Mass - Amherst, JESSE SILVERBERG, ITAI COHEN, Cornell University, RYAN HAYWARD, Univ of Mass - Amherst — Snap-through instabilities are commonly associated with the catastrophic failure of an elastic structure; yet in nature, snap-through instabilities are also used to execute fast motions. Inspired by origami, the ancient art of paper folding, we show that "folds" can be introduced on shells by the local thinning of material. These folds can either be activated continuously or can snap-through to a geometrically determined angle, depending on the delicate interplay between the curvature of the shell and the shape of the fold. We describe how geometry can (and sometimes cannot) be used to control the dynamics of foldable shells.

[1]EFRI ODISSEI 1240441

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Date submitted: 15 Nov 2013 Electronic form version 1.4