

Abstract Submitted
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Physics of curling ribbons ANNA M. KLALES, Department of Physics and Astronomy, Haverford College, Haverford, PA 19041, BUDDHAPRIYA CHAKRABARTI, Lyman Laboratory of Physics, Harvard University, Cambridge, MA 02138, VINCENZO VITELLI, Department of Physics and Astronomy, University of Pennsylvania, Philadelphia, PA 19104, L. MAHADEVAN, Division of Engineering and Applied Sciences, Harvard University, Cambridge, MA 02138, VINOTHAN MANOHARAN, Department of Physics, Harvard University, Cambridge, MA 02138 — Curling decorative ribbons by dragging it past one's thumb and the blade of a scissor is a well known technique used frequently. However a quantitative understanding of this apparently simple phenomenon is still lacking. We present results from recent experimental and theoretical investigations of this problem. Using the insights gained from this we propose a method of generating novel shapes by differential stretching and subsequent selective stress relief for thin sheets. We discuss the implications of this mechanism for the formation of ribbon like structures in biological systems.

Buddhapriya Chakrabarti
Lyman Laboratory of Physics, Harvard University, Cambridge, MA 02138

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