

Abstract Submitted
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Mechanics of Curved Folds¹ MARCELO A. DIAS, CHRISTIAN D. SANTANGELO, University of Massachusetts Amherst — Despite an almost two thousand year history, origami, the art of folding paper, remains a challenge both artistically and scientifically. Traditionally, origami is practiced by folding along straight creases. A whole new set of shapes can be explored, however, if, instead of straight creases, one folds along arbitrary curves. We present a mechanical model for curved fold origami in which the energy of a plastically-deformed crease is balanced by the bending energy of developable regions on either side of the crease. Though geometry requires that a sheet buckle when folded along a closed curve, its shape depends on the elasticity of the sheet.

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