Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Multistability of spontaneously curved anisotropic strips LUCA GIOMI, Harvard University / Brandeis University, L. MAHADEVAN, Harvard University — Multistable structures are elastic objects, typically composite plates or shells, with more than one stable conformation. The common tape measure or the steel band enclosed inside the bright fabric cover of a "slap bracelet", are classic examples of plates that exhibit two stable configurations: folded and unfolded. Multistable structures have many potential applications, from the simple construction of objects of adjustable size to the design of mechanical devices that switch between a discrete number of states. In this talk I will discuss multistability in a quasi-one-dimensional anisotropic strip. The reduced dimensionality allows an exact analytical treatment in terms of the classic Föppl - von Kármán theory of plates. In the conclusions I will comment on the possible occurrence of multistability in biological materials.

Luca Giomi
Harvard University / Brandeis University

Date submitted: 20 Nov 2009 Electronic form version 1.4