Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Slack, stress, and noisy structures in inertial strings JAMES HANNA, CHRISTIAN SANTANGELO, Department of Physics, University of Massachusetts - Amherst — Strings and chains are inextensible filaments with negligible bending and twist resistance. Local arc length conservation is enforced by the stress, a Lagrange multiplier field screened by curvature. Uniform stress fields are generated by a wide class of inertial motions that includes travelling waves of curvature and torsion, while gradients in stress result in more complicated dynamics. We will discuss a theoretical example inspired by experimental and numerical observations of the growth of an arch in a straightening chain, involving the amplification, rectification, and advection of slack.

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Date submitted: 07 Nov 2011 Electronic form version 1.4