

Abstract Submitted  
for the MAR06 Meeting of  
The American Physical Society

**Curvature condensation and twinning in an indented elastic shell**

MOUMITA DAS, ASHKAN VAZIRI, Harvard University, ARSHAD KUDROLLI, Clark University, L. MAHADEVAN, Harvard University — We study the formation of a localized geometrical defect and its evolution in an elastic shell using a combination of experiment and numerical simulation. We find that as a symmetric localized indentation on a semi-cylindrical shell increases, there is a transition from a global mode of deformation to a localized one which leads to the condensation of curvature along a parabolic crease along the line of symmetry. Further indentation leads to a twinning phenomena wherein the crease bifurcates into two defects that move apart on either side of the line of symmetry. We present a simple theory to explain the main features of the experiments and numerical simulations.

Moumita Das  
University of California, Los Angeles

Date submitted: 21 Nov 2005

Electronic form version 1.4