PHYSICAL MATHEMATICS SEMINAR

WRINKLING, FOLDING AND CRUMPLING OF ELASTIC SHEETS

NARAYANAN MENON
University of Massachusetts, Amherst

ABSTRACT:

Under the action of external forces, thin sheets tend to bend out of plane rather than stretch. For weak forcing, this leads to the distinctive wrinkling instabilities that you see on your skin. When more strongly confined, sheets crumple, and condense stress into a network of ridges which confer rigidity on the bulk material. At even stronger forcing, ridges develop into plastic creases which lead to complex time-dependent mechanical properties. I will describe experiments that study various aspects of this progression of features, concentrating on the wrinkling patterns seen in ultrathin polymer films.

TUESDAY, DECEMBER 4, 2007
2:30 PM
Building 2, Room 105

Refreshments at 3:30 PM in Building 2, Room 349
(Applied Math Common Room)

Massachusetts Institute of Technology
Department of Mathematics
Cambridge, MA 02139