

PHYSICAL MATHEMATICS SEMINAR

Shaping via Active Deformation

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ABSTRACT:

Many natural structures are made of soft tissue that undergoes complicated continuous shape transformations as a result of the distribution of local *active* deformation of its “elements”. Currently, the ability to mimic this shaping mode in manmade structures is poor. I will present some results of our study of actively deforming thin sheets.

Theoretically, we have formulated an elastic theory for such bodies and derived from it an approximate 2D plate theory for plates with intrinsic non-Euclidean metric.

Experimentally, we use environmentally responsive gel sheets that adopt prescribed metrics upon induction by environmental conditions. With this system we study the shaping mechanism and energy scaling in different cases of imposed metrics.

Finally, we measure growth of wild types and mutants leaves, attempting to link between their local growth tensors and the different evolution of their global shape.

TUESDAY, MARCH 10, 2009

2:30 PM

Building 2, Room 105

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



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