



HARVARD

School of Engineering
and Applied Sciences

2013 Winston Chen Lecture

mathematizing 'shape' from Dürer to MRIs

David Mumford, Brown University

Wednesday, April 24, 2013

Maxwell Dworkin G115

4:00 p.m. - 5:00 p.m.

Describing shape and comparing two shapes are problems that have been studied for a long time by painters and biologists. A mathematician's approach proposed by Riemann is to make a space out of all "shapes" (e.g. all simple closed plane curves) and to study the geometry of this space. Arnold was the first to compute geodesics and curvature on one such space. More recently his ideas have been extended and applied to analysis of medical images. A zoo of different properties is emerging. Mumford will describe some of the results of this program and connect it with an ancient Chinese map.

