

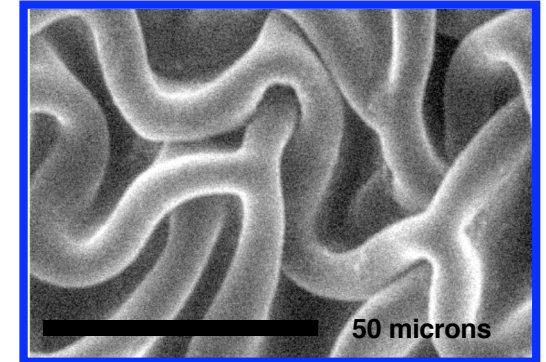
Emerging self-focusing principles in deformable interfaces

- DEFORMABLE INTERFACES:
- Can be deformed into 3rd, (4th...) dimension
 - Deformation carries energy cost.

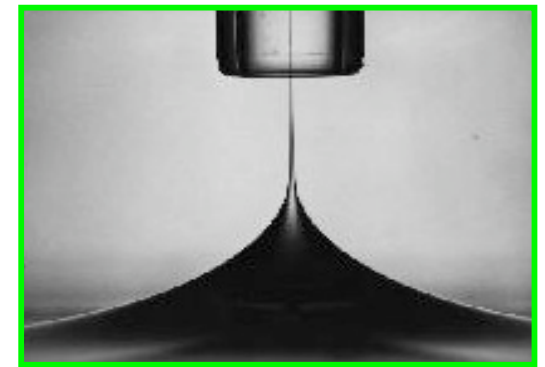
BACKGROUND: *Weak* deformations are well understood: waves

NEWS: *Strong* deformations spawn several new **energy-focusing mechanisms** showing robust scaling laws.

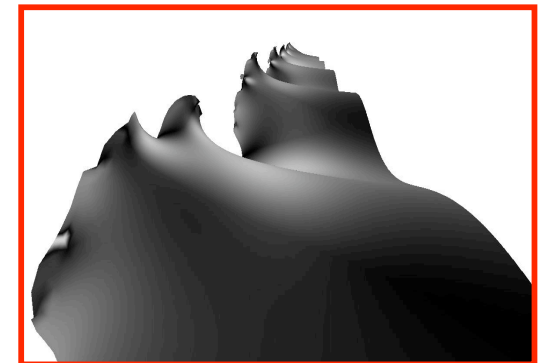
- CHALLENGE: Which deforming forces create
- Quasi-**uniform** deformation?
 - Singular structures of **focused energy**?
 - **Hierarchy** of structure?
- Shankar Venkataramani



SEM of Gel17: N-isopolyacrylamide gel 200 microns in thickness and less than 1 cm in size. It is put on a peltier device at 4 degrees centigrade and viewed with an SEM. The e beam cooks the gel from the top which causes the buckling. Also the gels contains silicon nanoparticles. S. Chaieb private communication 7/2004



S. Nagel et.al <http://mrsec.uchicago.edu> 2001. Viscous withdrawal of a thread of fluid.



Flounce at edge of stretched elastic sheet, E. Sharon et al. Nature, 419 p 579 (2002). Picture courtesy M. Marder 7/2004