Forces organizing soft matter:
large bio-molecules, colloids, polymers

* Theory and measurement of intermolecular forces

* Single molecule transport driven by molecular interaction

Visiting scientist: Rudi Podgornik (course “Physics of DNA”!)

Grad Students: Selcuk Yasar, Jaime Hopkins, Alphan Aksoyoglu

Undergrads: Adam Cohen, Andrew Clark, Pat Rogan

Prof: Adrian Parsegian
The theory of intermolecular forces (electrostatics, electrodynamics, solvation, steric) example: single-walled carbon nanotubes


Now under study: DNA, Lipids (cell membranes), Proteins

Rudi Podgornik, course, Physics of DNA
Measurement of forces and energies: example DNA-DNA repulsion

Equation of State: Osmotic pressure vs.
DNA density, function of salt, temperature

DNA inside virus

A. Evilevitch
Single-molecule transport: example, ionic channels

Sergey Bezrukov, Philip Gurnev
Unified equation of state for flexible polymers:
Osmotic pressures of many sizes and concentrations fit with ONE parameter.

Now measuring pressures in mixed systems, seeing polymers push other polymers through channels.
Thanks