



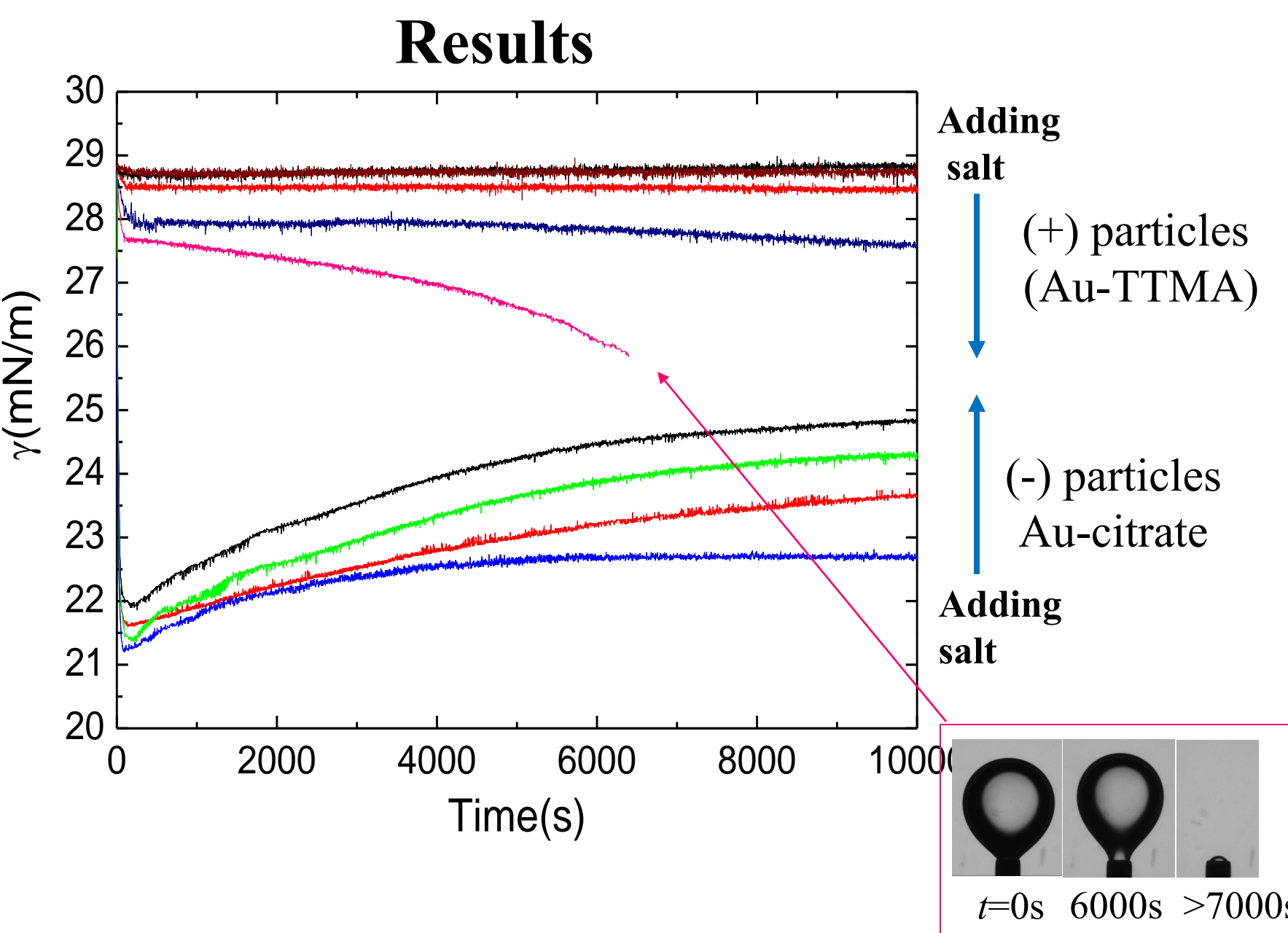
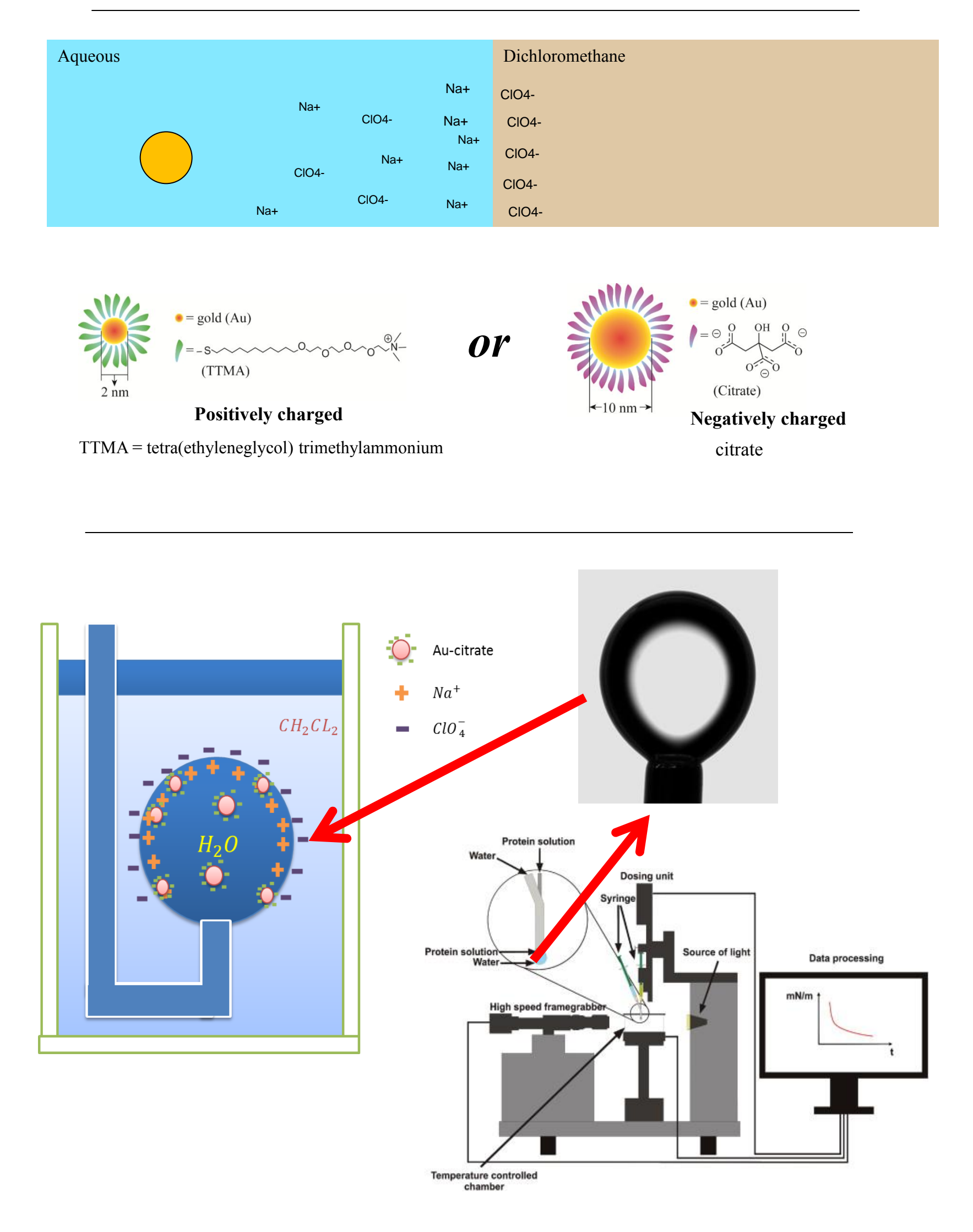
Dinsmore Group – Soft-Matter Physics

<http://people.umass.edu/dinsmore/>

Statistical mechanics of colloids, vesicles, emulsions, suspended nanoparticles, granular media...

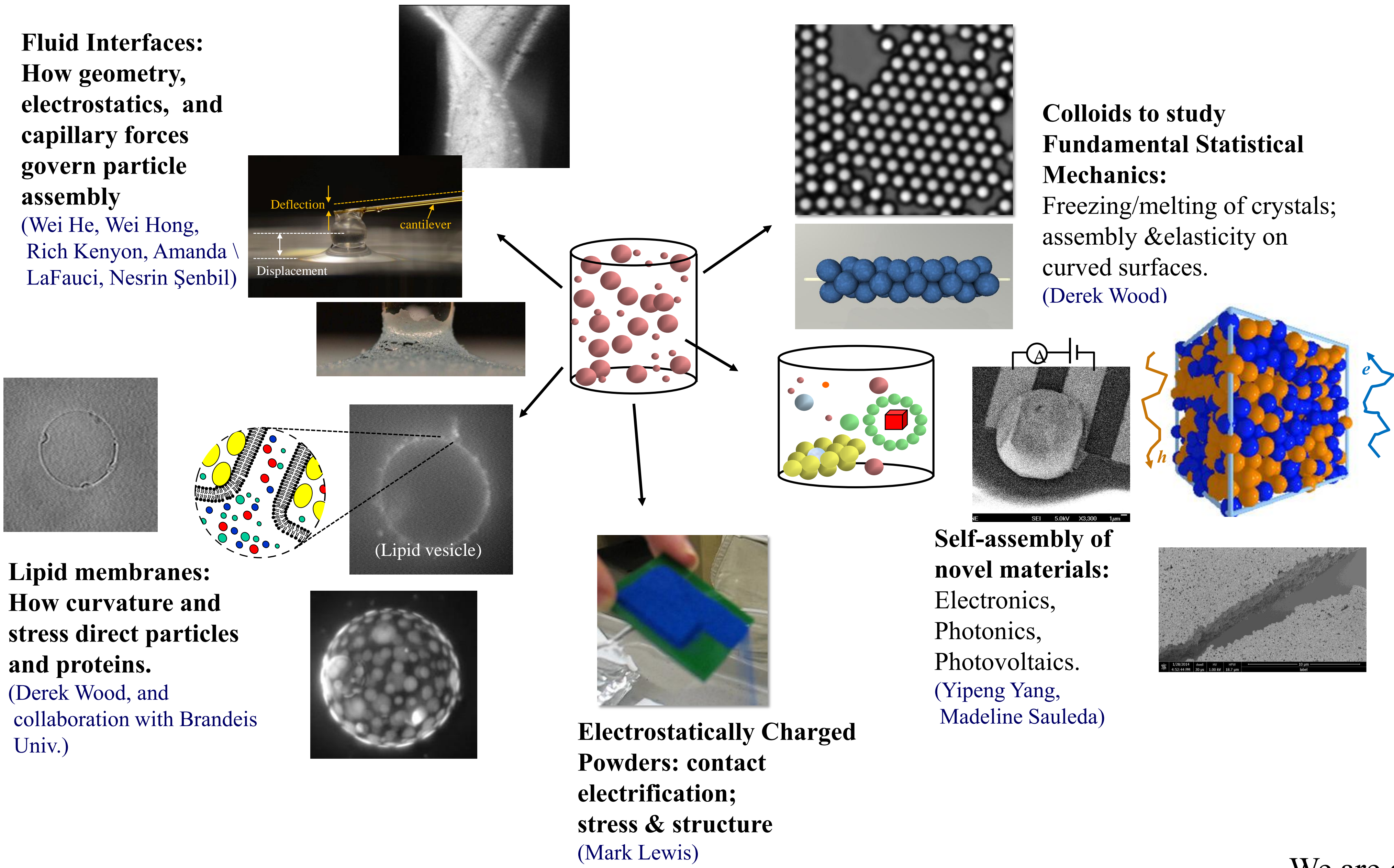
Fluid-interface electric potential controls the binding of nanoparticles (Wei Hong, w/ Russell group & Rotello group)

Fluid interfaces accumulate charge and electric potential. How can we control them and how do they affect particle binding? Can we find new ways to make large-area composite materials?



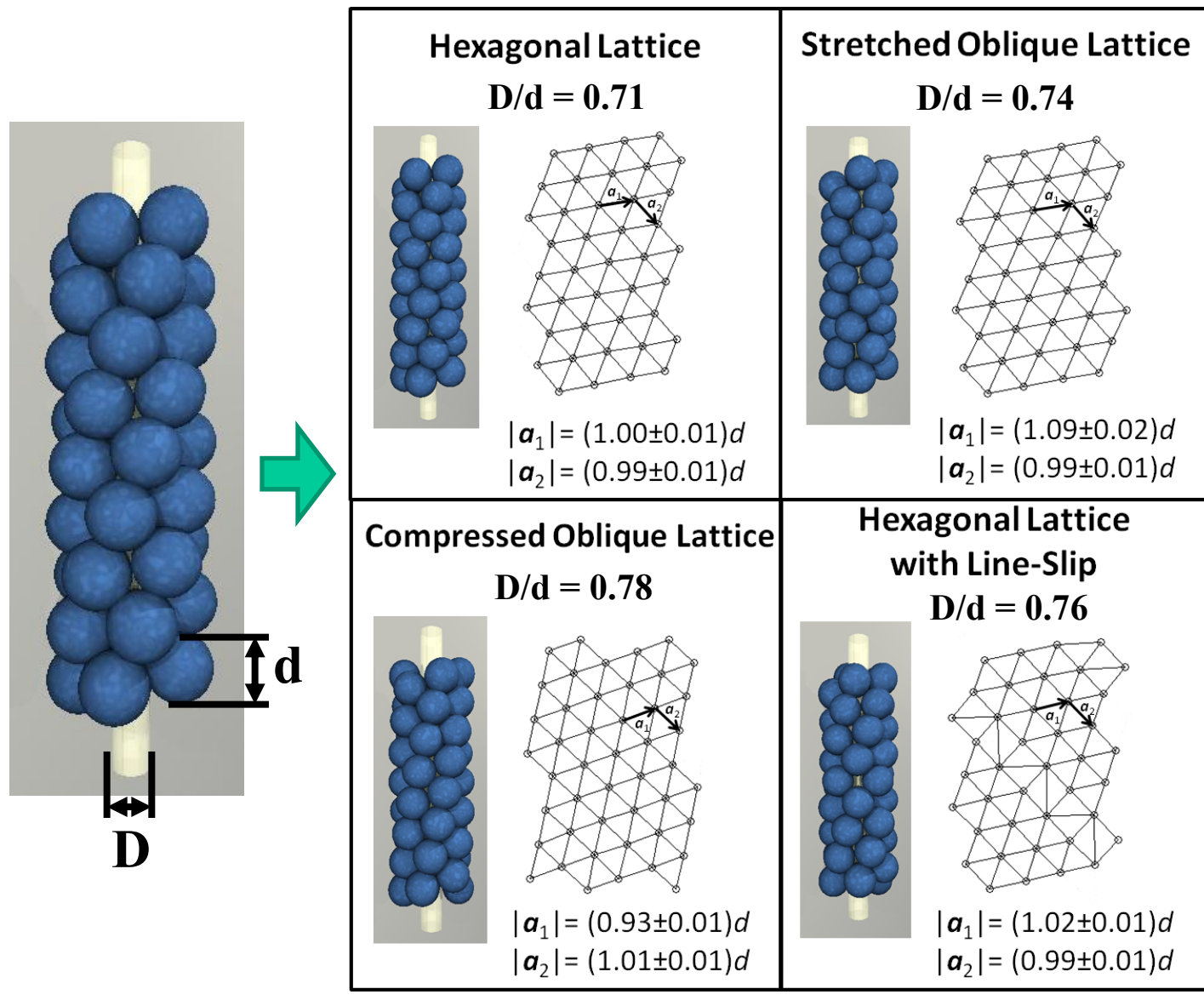
We study the statistical mechanics of soft matter: colloids, vesicles, emulsions, nanoparticle suspensions and other squishy things. Our experiments probe the relationships among inter-particle forces, structure, and dynamics of many-bodied systems -- relationships that are central to research in condensed-matter physics. We also apply this fundamental understanding to develop materials at the nanometer scale. Self-assembled materials have unique and inspiring mechanical, optical and electronic properties with applications in nanotechnology and biomedical engineering.

Fluid Interfaces:
How geometry, electrostatics, and capillary forces govern particle assembly (Wei He, Wei Hong, Rich Kenyon, Amanda LaFauci, Nesrin Şenbil)

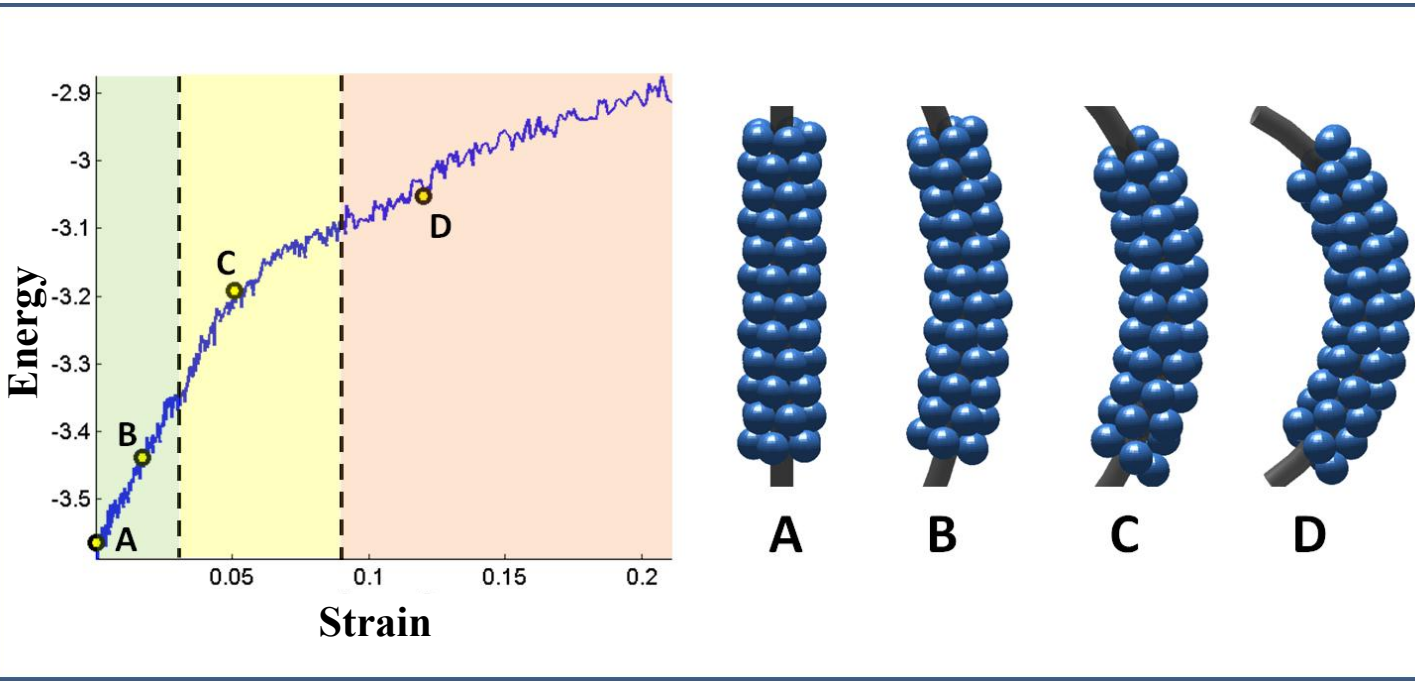


Geometry, Structure & Elasticity (Derek Wood)

How do spheres pack on a cylinder? Computer simulations show that the diameter of the cylinder determines the structure of the crystal lattice...



... Now, how does its crystal lattice affect material properties such as the bending modulus?



We are grateful to the following agencies for supporting this research:

