1060-82-13 **Corey S OHern*** (corey.ohern@yale.edu), Department of Mechanical Engineering, P. O. Box 208286, New Haven, CT 06520-8268. *What Do We Know about Static Packings: From Hard Spheres to Ellipsoidal Particles and from Collapsed Polymers to Folded Proteins?*

I will survey my recent computational and theoretical studies of particle packings with different particle shapes and interactions, dimensionality, boundary conditions, and constraints. In particular, I will highlight four interesting results: 1. The probability with which particular packings occur is highly nonuniform, 2. Continuous geometrical parameterizations of states are necessary to characterize frictional packings and those over a range of boundary conditions, 3. Static packings of ellipsoidal particles have very different structural and mechanical properties compared to packings of spherical particles, and 4. Structural properties of model collapsed polymers are highly sensitive to the preparation history. (Received January 11, 2010)