

Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Self-assembly of complex shaped colloidal particles ADELINE PERRO, VINOTHAN N. MANOHARAN, Harvard School of Engineering and Applied Sciences — We have developed a new method to produce hybrid particles with polyhedral shapes in very high yield (liter quantities at up to 75% purity) using a combination of emulsion polymerization and inorganic surface chemistry. The optical properties of these particles are tailored for studying their dynamics and self-assembly. For example, we produce systems that consist of index-matched sphere doublets with a small strongly scattering inorganic core between the two spheres, allowing us to track the center of mass of each doublet. We have generalized the preparation procedure to create even more complex geometries, including hybrid tetrahedra and octahedra. We present some preliminary studies on the self-assembly of these systems based on various optical experiments, including confocal microscopy, light scattering, and digital holographic microscopy.

Adeline Perro
Harvard School of Engineering and Applied Sciences

Date submitted: 15 Nov 2007

Electronic form version 1.4