

SEMINAR

*Institute of Technology Distinguished Women Scientists and
Engineers Speakers Program*

PHOTONIC STRUCTURES VIA NON-SPHERICAL PARTICLE SELF-ASSEMBLY



Wednesday, April 30,
coffee at 10:45, seminar at 11:00
402 Walter Library / Digital Technology Center

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Abstract. Non-spherical colloidal particles dramatically expand the symmetry and topology that can be achieved using self-assembly. Anisometric particle systems have analogies to molecular systems, where the shapes of molecules and their packing densities critically influence structural phase behavior and lead to a rich diversity of natural and synthetic structures. However, experimental attempts to organize non-spherical colloids have often resulted in amorphous deposits or locally ordered films with small grain size. In this talk, the particle synthesis and the formation of complex colloidal structures from monodisperse dimer, spherocylinder, and peanut-shaped building blocks using convective, confinement, and magnetic field-assisted assembly methods will be discussed. The potential of these colloidal films as photonic band gap materials will also be highlighted.

Biography. Chekesha Liddell received a Bachelor of Science in Chemistry with Highest Distinction from Spelman College (1999) and a Bachelor of Materials Engineering from Georgia Institute of Technology (1999), [Atlanta University Center, Dual Degree Engineering Program]. She was awarded the NASA Women in Science and Engineering Scholarship to support her undergraduate work including an honors thesis on the Synthesis and Characterization of m-Aminobenzenearsonic acid. Liddell also held three internship appointments at NASA, Kennedy Space Center in the Cryogenics and External Tank Branch and the Microchemical Analysis Laboratories. She joined the Cornell University faculty in November of 2003, after receiving a Ph.D. in Materials Science and Engineering with a minor in Science and Technology Policy from Georgia Tech. The Liddell group research efforts focus on the development of colloid-based materials [using synthetic chemistry, surface modification, self-assembly and field-directed assembly] and on understanding the relationship between their structure and optical properties.

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