

Abstract Submitted  
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**Colloidal Lithography and Particle Decoration Metrology**

STEVEN HUDSON, THUY CHASTEK, BARRY BAUER, NIST — The self-assembled organization of particles depends on the symmetry of their interactions, and strides are being made in producing nanoparticles of controlled shape and functionalization. Here we use particle adsorption to control and detect surface modification, particle symmetry and shape. We have studied ways to achieve a random sequential adsorption of polystyrene (PS) spheres to make asymmetric particles on charged polyelectrolyte films. After coating the spheres with an oppositely charged layer and releasing them from the charged film, they had a small charged patch on their surface. This provided sufficient area to associate with a single oppositely charged particle of comparable size, and resulted in the controlled formation of asymmetric doublets. Additionally, a strategy that added oppositely charged particles, which were smaller than the charged surface patch on the PS spheres, was used to measure the size of the exposed charged area.

Steven Hudson  
NIST

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