

Abstract Submitted  
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**Superparamagnetic Core-shell Silica- Polypeptide Composite Particles**<sup>1</sup> PAUL RUSSO<sup>2</sup>, SIBEL TURKSEN, ERICK SOTO-CANTU, JIAN-HONG QIU, Louisiana State University — Core-shell composite particles have been prepared, each consisting of a silica-coated cobalt center to which a homopolypeptide shell, either poly ( $\epsilon$ -carbobenzyloxy-L-lysine) or poly ( $\gamma$ -benzyl-L-glutamate), is attached covalently. Core particles were decorated with a mixture of amino groups and passivating groups through silylation reactions. The amino groups initiated the polymerization, with attachment, of *N*-carboxyanhydride monomers, resulting in a homopolypeptide shell. Characterization by dynamic light scattering confirmed the helix-coil transition of the particles through repeated heating and cooling cycles in an organic solvent. The living nature of the polypeptide shell has also been confirmed. The particles have a size and uniformity that leads to formation of colloidal crystals. Magnetometer measurements suggest the particles are superparamagnetic.

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