323d Synthesis and Characterization of Biocompatible Metal Nanoparticles

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Metallic nanoparticles exhibit unique optical, electrical, and magnetic properties making them potentially useful for analytical applications in the biomedical field. While wet chemical methods have made significant progress in controlling size dispersion and composition of a range of different materials, many of these techniques use organic ligands to stabilize the clusters in solution making them incompatible with biological systems. Recent studies have shown that simple sugars such as glucose and fructose can be used as both the reducing agent and stabilizing surfactant allowing dispersion of metal nanoparticles in biofriendly aqueous environments.[1] We present here results for the synthesis of various metal clusters such as gold and cobalt in aqueous solutions. The optical and magnetic properties of the metal nanoparticles is promising for their incorporation as active markers for in vivo studies of biomedical pathways.

[1]S. Panigrahi, S. Kundu, S. Ghosh, S. Nath, and T. Pal, J. Nanoparticle Res. **6**, 411 (2004).