

MEng Project: Gold Nanoparticle self-assemble

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Gold nanoparticles exhibit fascinating size-dependent electric, magnetic and optical properties, and find applications from catalysis to biology. The development of simple and versatile methods for the preparation of gold nanoparticles in a size- or shape-selected and -controlled manner is an important and challenging task for the design of gold nanoparticles with such novel physical properties. Gold surfaces and nanoparticles are attracting significant attention recently in the context of emerging nanotechnology applications.

Numerous strategies for gold nanoparticle functionalization have been explored, including thiol-containing polymers, ionic liquids, and amphiphilic molecules. Depending on the surface modifier, gold nanoparticles with a wide range of functional properties and potential applications can be obtained.

Our goal is to synthesize specific shape of gold nanoparticle to achieve self-assemble and explore new properties of this new structure.