Preparation and Characterization of Supported Flat Gold Nanoparticles

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Flat gold nanoparticles (FGNPs) are be prepared in solution and then deposited on Indium Tin Oxide (ITO) substrates for our STM studies. In this poster we describe our work to grow and characterize the FGNPs and their deposition onto ITO substrates. Transmission electron microscopy (TEM) shows that FGNPs can be prepared 100–500 nm across with shapes that range from triangular to hexagonal with thicknesses of 15-25 nm. Dark-field optical microscopy is a convenient method for evaluating the FGNP arrays because the FGNPs and spherical gold nanoparticles are distinguished easily by their plasmon resonance spectra. TEM and STM show that our FGNPs grow as single crystals, rather than by aggregation of smaller nanoparticles. The effect of sonication as a tool to modify the FGNP/ITO substrates is also discussed.