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**Chemistry and Electrochemistry of Metal Quantum Dots**  

**Mercredi, le 7 avril 2004**  
Salle G-1015, Pavillon Principal  
11h30  

Résumé:  

This lecture will describe the analytical chemistry, chemical modification, chromatography, electrochemistry, and spectroscopy of gold nanoparticles coated with monolayers of thiolate ligands. The stability of these materials has allowed purification to reasonably monodisperse forms to which formulae, in the two cases most discussed- $\text{Au}_{38}$(phenylethanethiolate)$_{24}$ and $\text{Au}_{140}$(hexanethiolate)$_{53}$- can be assigned. The former nanoparticle has distinctly molecule-like properties and a model electronic energy level diagram is assembled from electrochemical and spectroscopic information. The $\text{Au}_{140}$ nanoparticle does not exhibit an appreciable molecular bandgap and instead displays a quantized double layer charging phenomenon in its electrochemistry.