

Synthesis and fluorescent properties of gold atomic clusters

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Small metal clusters typically consist of several to tens of atoms, with sizes below 2 nm. These atomic clusters behave like molecules and exhibit enhanced catalytic activity, luminescence, and unique charging properties. In particular, the fluorescent properties make them potential labels for biological applications.

In this work, we have synthesized alkenethiol-protected gold clusters by introducing alkenethiol ligands onto the surfaces of gold nanoparticles. This strategy offers an interesting approach to create metal clusters from nanomaterials. [1,2] Photoluminescence spectra of gold clusters produced using this method, excited at 400 nm, exhibit a maximum emission around 520 nm.

A novel templating procedure using nanosomes, made of bola-hydroxyl and mercaptopalmitic acids acting as capping agents, was also used for the direct production of clusters. [3]

Characterization of samples was carried out by UV-vis and Fluorescence spectroscopy, TEM and AFM.

References:

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