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Sulfur based metal complexes for synthesis of semiconductor nanoparticles

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The thiol based ligands have been used extensively for thei use as sources of semiconductor nanopartcles using different methods. Some of those ligands include thiourea and derivatives, dithiocarbamates, thiurams, thiarams and others. These are generally reacted with various metals and most commonly cadmium, cobalt, copper, zinc to use the advantage of their bonding to the sulfide. The single source precursor route is normally the approach fllowed to explore the nanoparticles synthesis from these complexes. Higher temperatures are required to carryout such reactions and using high boiling point organic solvents such as hexadecylamine, trioctylphosphine, oleylamine to produce different mrophologies. The presentation will discuss some examples with more focus on thiourea based ligands as explored by the authors to discuss their properties and potential in various applications. Technqies to be explored include optical properties using absorption and fluorescence spectrometry, thermal studies using TGA, chemical structural interactions using FTIR spectrometry, determine phases of materials prepared using XRD, TEM for sizes and shapes of nanomaterials. An overview of some of those selected complexes on their synthesis and nanoparticles approach used will be discussed.

Biography

Makwena Justice Moloto has completed his PhD at the age of 30 years from the University of Zululand and spend time at the University of Manchester to complete his PhD hosted by school of chemistry. He is the researcher at one of the technically orientated university in the department of chemistry. He has published more than 40 papers in reputed journals and has been serving as a reviewer for a number of materials chemistry journals of repute.

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