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Qeios

Peer Review

Review of: "Surface coating is an inseparable part of electromagnetic nanoparticles in order to be able to use them"

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> **Note: Surface coating is an inseparable part of electromagnetic nanoparticles in order to be able to use them . Although nanoparticles do not attract each other due to their superparamagnetic properties, electromagnetic nanoparticles tend to aggregate and accumulate due to the high energy of the surfaces.**

Metal alloys or bimetallic nanoparticles have a high superparamagnetic property that makes them suitable for electromagnetic nanomolecules or electromagnetic nanocarriers . In addition, the electromagnetic property of the surface of these nanoparticles allows surface active materials to be placed on the surface of their nanoparticles, which can be used to dissolve the nanoparticles . The electrostatic stability of nanomolecules is not suitable for nanoparticles; although the repulsion of charges on the surface of nanoparticles can prevent their aggregation, in the presence of a catalyst or other electrolytes in the internal environment of electromagnetic nanoparticles, these charges are neutralized. Electromagnetic (active) properties in the coating of nanoparticles, like a barrier, prevent their aggregation , and chemical functionalization creates suitable and efficient properties for nanoparticles . Molecular weight and geometric orientation on the surface of nanoparticles exist in various forms. Layers that fully activate electromagnetic nanoparticles. Prevent nanoparticles from accumulating on top of each other. In addition to organic coatings, core-shell structures are also used for optimal use of electromagnetic nanoparticles . Structural engineering of magnetic nanoparticles is the functionalization of particle surfaces, which can have multiple agents or multiple (ligands).

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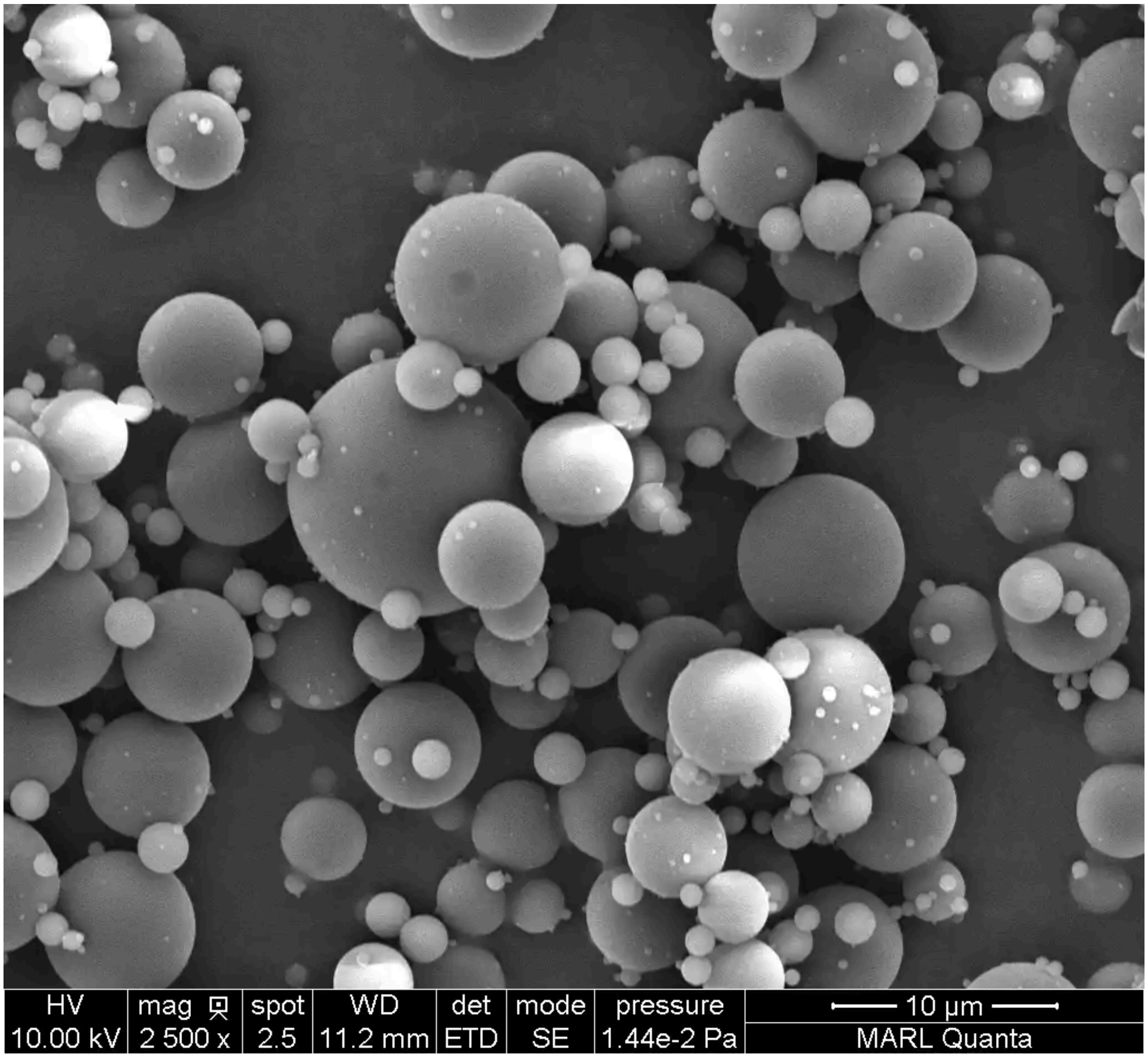
Uncoated and coated nanoparticles can attract (bimetallic) nanoparticles with various electromagnetic molecules and create an active process.



> **Electromagnetic nanoparticles are particles less than one hundred nanometers in size that have magnetic properties in the presence of an external magnetic field. The simplest structure of nanoparticles consists of a magnetic core (such as iron oxide, nickel, and cobalt) and non-magnetic coatings of various chemical compounds . In electromagnetic nanomaterials, the molecules and atoms that make up them have magnetic properties. In simpler terms, elements such as iron, cobalt, nickel, and their alloys that are attracted by a magnet are called nanomagnetic materials.**

Nanostructured materials that are electrically conductive allow the production of inexpensive and portable biosensors and biodetectors . These materials can be considered as warning signs

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and therefore can be used in hazardous environments. The detection of single molecules by photon detectors is another example of the application of nano-microelectronics in the life sciences.

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Declarations

Potential competing interests: No potential competing interests to declare.