



Nanowire fabrication from nanoparticles suspended in liquid media

The invention

A method for fast fabrication of gold based nanowires. Gold particles are coated with shells and placed within surfactant films on liquid media, allowing them to self-assemble into a wire-like formation. The liquid media is then heated and the resulting wire is transferred into a solid support. At the last phase the shell coating is removed and the wire is ready for functioning.

The need

Nano electronics is a growing field in the hardware sector. The ability of connecting to multiple Nano-sensors and Nano devices, is ever more important. There are multiple types of Nano-wires and methods for their fabrication. There is a need however, for a method that will allow repeatability and ease of manufacture while controlling the quality of the products. In addition, in Nano scale, corrosion can have devastating effects on components and the ability of using corrosion resistant materials is important.

While gold is a relatively expensive material for nanowires formation as the basic for Nano electronics, it has however special qualities that create advantages over other materials.

In corrosive environments, or where biocompatibility is required gold has advantages over other metals that undergo oxidation more easily and can thus suffer from reduced electronic performance with time.

Potential applications

Potential applications can range from medical instruments and implanted sensors in the medical domain, and up to Nano-devices installed in corrosive environments.

Control systems for autonomous machinery in corrosive environments – aerospace, military and chemical industry environments.

Patent

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