

GRANTED**(IN450989)**

Method for constructing large area synthesis of patterned complex metallic nanostructures and dissymmetrical tags



NEED

Conventional nanomaterial fabrication techniques rely on high-cost equipment and toxic chemicals. They often result in inconsistent particle shapes, affecting device performance. What if nanostructures were made cleaner, cheaper, and more uniform using just spin coating, plating, and sonication?

TECHNOLOGY OVERVIEW

A novel method produces metallic nanostructures using silica nanobeads, sputtering, electroless plating, and sonication. The technique enables uniform nanoparticle formation without high-temperature synthesis or harsh reagents—ideal for low-cost, eco-friendly nanomaterial manufacturing.

TECHNOLOGY KEY FEATURES

Uses spin coating, sputtering, electroless plating at 60–65°C, and sonication. Works on glass, polymer, or silicon. Uses methanol as solvent. Enables uniform and reproducible nanostructures. Requires no advanced lithography or etching.

[Read more here](#)

MARKET ANALYSIS

Global nanomaterials market to reach \$103.6B by 2033, growing at 13.6% CAGR (Precedence Research, 2023). Indian market growing at 17.3% CAGR. Growth driven by electronics, energy devices, and nanomedicine applications.

Target Industries

Nanomaterial Coating Manufacturers and/or Microfabrication Process Integrators and/or Electronics, Biomedical, and Energy Storage Device Developers working on R&D and nano-enabled product innovations.

AT A GLANCE

- SDG 9 (Industry, Innovation and Infrastructure), SDG 12 (Responsible Consumption and Production), SDG 13 (Climate Action)

Technology is available for licensing/ co-development.

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