



TECHNOLOGY

A New Approach to Contacting Nanowire Arrays Using Nanoparticles

OVERVIEW

Despite significant advancements in nanowire growth techniques and device descriptions, establishment of electrical contacts to nanowire assemblies through non-destructive methods has not yet been successfully realized. The commonly employed method involves physically removing nanowires through some form of lithography. Such a series of steps are not only destructive, but also expensive and tedious. Another method involves burying the nanowire array in an insulating matrix such as spin-on glass or polystyrene, followed by plasma etching to expose the nanowire tips. However, this approach prevents access to the surface of the nanowires, which would be necessary for applications like gas sensing.

Researchers at the University of Maryland have come up with a novel approach towards connecting and electrically contacting vertically aligned ZnO nanowire arrays using conductive nano particles. The first successful application of this nano-architecture is a gas sensing device which exhibits high sensitivities to low concentrations (10ppm to 50ppm) of both reducing (methanol) and oxidizing (nitrous oxides) gases. This approach of creating a top contact to a vertically aligned nanowire assembly as grown may also be useful for the design and fabrication of electrically driven nanowire lasers and LEDs.

For further information, please contact the Office of Technology Commercialization, (301) 405-3947, E-mail: otc@umd.edu.

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Additional Information

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CATEGORIES

- Nanotechnology + Nanoparticles + Nanomaterials
- Microelectronics

EXTERNAL RESOURCES

- [US Patent 8,324,703](#)

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