



Advanced Materials and Devices: Micro/Nanofabrication and Characterization

Gracie Wilson*

Editorial

The key to the nanotechnology revolution is the controllable manufacturing of materials/devices at the micro- and nanoscale, which is backed up by enhanced characterization. We have made nanotechnology a reality, compared to decades before when it was confined to the literature. Some sectors, such as silicon chip manufacture, have been affected by the nanoeffect and are attempting to avoid it. The key to the nanotechnology revolution is the controllable manufacturing of materials/devices at the micro- and nanoscale, which is backed up by enhanced characterization. We have made nanotechnology a reality, compared to decades before when it was confined to the literature. Some sectors, such as silicon chip manufacture, have been affected by

the nanoeffect and are attempting to avoid it. As a result, logical and repeatable nanomaterial synthesis is required. We can find some latest nanotechnology updates in this special issue.

Bacterial adhesion to medical devices causes serious infections, which cause a lot of pain for people. A Colombian group has devised a surface modification technology that reduces bacterial adherence on steel 316L by a factor of one. This magical bacterial adhesion thin film can also be transferred to other substrates, which is important. The University of Manchester scientists developed a method for fabricating TiO₂ nanotubes on Ti and Ti alloys in a scalable manner. The diameters of the TiO₂ nanotubes can be varied between 25 nm and 100 nm. It's worth noting that the new process results in a 7.5 fold reduction in cost. They employed carbon nanotubes that had been functionalized to detect benzene levels in the atmosphere. Benzene has been widely used in plastics and other polymer products as a hazardous substance. These carbon nanotube chemical sensors could help Malaysia and other Southeast Asian countries monitor benzene levels in the workplace. The latter two papers were contributed by Chinese researchers. Lamellar activated carbons have a high capacitance and outstanding rate performance. It's worth mentioning that these supercapacitors only have a 0.4 percent capacitance decrease after 2000 cycles..

Author Affiliation

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*Corresponding author: Gracie Wilson, Editorial Office, Journal of Nanomaterials & Molecular Nanotechnology, London, United Kingdom
E-mail: nanotechnol@journalres.com

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