

## Letter to the Editor

# Importance of Nanotechnology & Nanomedicine

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Dear Readers of JSM Nanotechnology & Nanomedicine,

The extraordinary developments of nanotechnology and nanomedicine during the past decade have significantly pushed the frontiers of materials science and the inventive spirit of industrial and clinical users alike. The ever improving ability to design, improve and commercialize new materials is clearly a feature that we just started to observe in recent years. Thus, a new journal that allows for rapid, but carefully reviewed dissemination of novel nanotechnology is a much needed additional avenue at this time, especially when open access can result from the publication process. The industrialization of nanoscale titanium dioxide for a broad range of applications (most of which we are quite familiar with) is only one such example showing how nanomaterials have become a central component in the manufacturing process during the past decade.

Still, it is clear to most nanoscientists that we have years and decades of development ahead of us to arrive at high-performance and specifically functional materials. For example titanium dioxide can be used to purify contaminated surfaces, water or air. It is an area my research team and coworkers have been working on for the past decade. Clearly, much more effort is needed to optimize this technology and make it broadly applicable. Understanding the nature of the optical and

surface-electrochemical properties under realistic and practical conditions will provide guidance for the development of novel catalytic materials and technologies.

Nanoscientists need to consider the significant effects of the chemical environment, since the adsorption and desorption processes of low concentration pollutants under practical conditions are steps that need to be thoughtfully integrated into the consideration of efficiencies and mechanisms. We have worked on the influences of several important conditions, such as catalyst concentration and composition, pollutant concentration, contact time, co-existing pollutants, water vapor, and light exposure, to name a few. It seems clear that the use of catalysts, which is nowadays prevalent in industry, will become similarly important in environmental and even clinical studies.

I wish great success to this new journal and hope that the rapid and open publication of nanotechnology and nanomedicine research will serve the field and on a practical side our quest for improvements of our lives.

Regards,

Clemens Burda