

Guest Editorial

We are in exciting times. Nanotechnology is a new paradigm in science that has already changed the model for multidisciplinary research and development. A similar multi-industry paradigm is evolving that is driven by advances in Nano-Manufacturing (NMfg). NMfg is the science and engineering of design, deposition, machining, metrology, assembly, and integration of heterogeneous materials to produce new nanoscale materials, nanoparticles, devices, components and systems in a sustainable manner. The timely objective of this Special Issue is to generate awareness and share opportunities for cross-pollination of ideas in the path-breaking NMfg domain, through peer reviewed papers that illustrate recent interdisciplinary advances in science and engineering of NMfg. NMfg is the vehicle by which the world will realize the promise of major technology innovations across a spectrum of products that will affect virtually every industrial sector.

The development of NMfg has proven to be an essential bridge between the discoveries of nanoscience and real-world nanotechnology-enabled products. NMfg has shown major early success in applications such as batteries, coatings of tools and wear parts, performance additives for plastics, and as biomedical drugs. NMfg is one of the key stimuli to a new economic engine. It is also worth noting that these developments are complementing and enabling growth in green and sustainable manufacturing technologies. Therefore, it is timely to discuss advances in NMfg science and engineering that deliver knowledge and tools to enable breakthrough nanotechnology inventions and discoveries in viable products for various key industry sectors including automotive, electronics, communication, defense, biomedical and others.

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