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Radical innovations in nanotechnology: From nanotube boats and dna drugs to invisibility cloaks and geckskin

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A remarkable and unprecedented surge in nanotechnology research is currently underway. These exciting developments have the potential to radically transform industries and markets. In nanomedicine, broad spectrum antiviral drugs are being developed that could treat up to 90 percent of all harmful viruses, and the first successes in gene therapy are being reported. In material science, the Nobel Prize-winning nanomaterial graphene is rapidly being commercialized, and the first ocean-going boats made with carbon nanotubes are already on the market. In nanoscale imaging, labs are imaging viruses, DNA strands, proteins and other structures that need to be viewed in real time to understand the processes that cause disease.

In research labs, scientists have learned to bend and slow light to create invisibility cloaks. University research teams have created an adhesive that replicates how geckos cling to smooth glass windows, and a material that replicates the waterproof characteristics of a butterfly wing. These are only a few examples that will be discussed by Michael Tomczyk, drawn from his new book, "NanoInnovation: What Every Manager Needs to Know" (Wiley, 2013).

Biography

Michael Tomczyk is Managing Director of the Mack Center for Technological Innovation at the Wharton School, University of Pennsylvania. He is active in developing and promoting innovative solutions in medicine, environmental science and nanotechnology. Michael is a member of the IEEE/IEC committee developing standards for the use of nanotechnology in electronics, and serves on the translational medicine committee at the Perelman School of Medicine at the University of Pennsylvania. His new book, "Nano Innovation: What Every Manager Needs to Know" will bepublished in early 2013 by Wiley-VCH. His best-selling book, "The Home Computer Wars" describes his experiences as a technology pioneer, leading the development of the first home computer (at Commodore in the 1980s). His publications include a book chapter entitled "Applying the Marketing Mix (5 Ps) to Bio nanotechnology" published in Biomedical Nanotechnology (Springer, 2011); and a 2006 research report entitled "The Future of Bio Sciences: Four Scenarios for 2020 and Their Implications for Human Healthcare".

Michael holds a master's degree in environmental studies from the University of Pennsylvania, a master's in business administration from U.C.L.A., and a Bachelor of Arts degree from the University of Wisconsin.

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