

Book Review by Ken Gilleo

What is What in the Nanoworld: A Handbook on Nanoscience and Nanotechnology, 2nd Edition, Wiley-VCH, 538 pages, November 2008, by Victor E. Borisenko, Stefano Ossicini

This new edition Nano reference book comprehensively covers the full range of nanoscience research and nanotech development topics with about 2,000 entries to make it a valuable resource for technologists, researchers, business professionals, and students who deal with the “Nano” field. Every relevant term, definition, structure, principle, rule, and equation is covered ranging from a brief sentence for simple terms to more than a page with illustrations for complex topics. The combination of alphabetical dictionary format with encyclopedic overviews illustrated with formulas, drawings, tables and graphs, makes for a highly readable educational tool. This makes the book useful for the newcomer who wants to understand “nano” and professionals working in the field. While useful for a quick “look-up”, the book also provides a comprehensive overview of important phenomenon, principles and structures. Major divisions of rapidly expanding Nano are included; chemistry, physics, biology and multidiscipline engineering.

The latest developments and status for nanoelectronics, optics, and optoelectronics are described including molecular electronics, spintronics, and emerging quantum effect areas. Well-known and newly introduced functions, equations, rules and principles are thoroughly presented, including some of the more complex subjects of quantum chemistry and physics. Many topics include a mini-history of the relevant science and technology. Here’s a selection of items: carbon nanotubes, the Schrodinger equation (and his cat), at least 9 Einstein equations/effects, fullerene, and a several-page overview of self-assembly and self-organization. Extensive references are provided, including 62 "nano" journals, many launched in the past year. Secondary sources for further study are generously provided, including websites.