Handbook of Nanostructured Materials and Nanotechnology, Five-Volume Set

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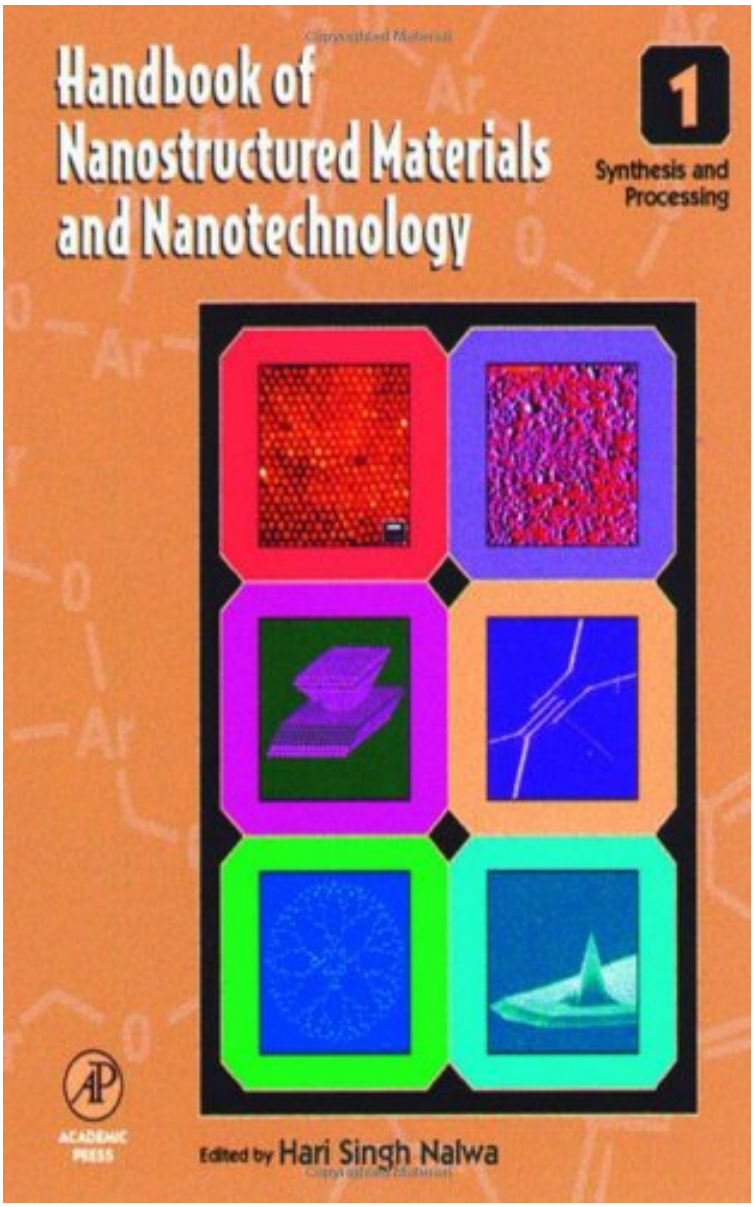

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Nanostructured materials is one of the hottest and fastest growing areas in today's materials science field, along with the related field of solid state physics. Nanostructured materials and their based technologies have opened up exciting new possibilites for future applications in a number of areas including aerospace, automotive, x-ray technology, batteries, sensors, color imaging, printing, computer chips, medical implants, pharmacy, and cosmetics. The ability to change properties on the atomic level promises a revolution in many realms of science and technology. Thus, this book details the high level of activity and significant findings are available for those involved in research and development in the field. It also covers industrial findings and corporate support. This five-volume set summarizes fundamentals of nano-science in a comprehensive way. The contributors enlisted by the editor are at elite institutions worldwide. Key Features* Provides comprehensive coverage of the dominant technology of the 21st century* Written by 127 authors from 16 countries, making this truly international* First and only reference to cover all aspects of nanostructured materials and nanotechnology

"Nanotechnology, with its multidisciplinary nature and numerous potential applications, may be one of the most difficult fields in which to stay informed. Such a new area would typically have to wait several years for a disciplined, well-organized survey to appear, but Hari Singh Nalwa has already compiled a five-volume overview, Handbook of Nanostructured Materials and Nanotechnology....The contributors have exerted considerable effort to include introductory material that will benefit readers who are crossing disciplinary lines. Anyone interested in learning how these materials can be made, how they can be characterized, and what they can and might be able to do will likely be well served by this reference."--Phillip D. Szuromi, SCIENCE, June 2, 2000 issueFrom the Back CoverFrequently called the materials science of the twenty-first century, the field of nanostructured materials and technology has made extraordinary progress over the past decade. A dramatic increase in research activities has created the need for a reference in this area. Handbook of Nanostructured Materials and Nanotechnology is the first and most authoritative reference work published to date.Including the most outstanding contribution in the field, with 62 state-of-the-art review chapters from more than 140 authors from sixteen countries, the Handbook addresses recent developments in synthesis, processing, fabrication, spectroscopy, theory, electrical and optical properties, and device applications of nanostructured materials, providing the most comprehensive coverage of nanostructured materials and nanotechnology ever compiled.With more than 10,300 bibliographic citations and nearly 12,000 drawings, photographs, tables, chemical structures and equations, this handbook is an incomparable reference source for scientists as well as graduate and advanced-level undergraduate students working in chemistry, physics, biology, materials science, spectroscopy, polymer science, ceramic, electronic, mechanical, chemical, aerospace, and optical engineering.About the AuthorDr. H. S. Nalwa is the Managing Director of the Stanford Scientific Corporation, Los Angeles, California. He was Head of Department and RD Manager at the Ciba Specialty Chemicals Corporation in Los Angeles (1999-2000) and a staff scientist at the Hitachi Research Laboratory, Hitachi Ltd., Japan (1990-1999). He has authored more than 150 scientific articles and 18 patents on electronic and photonic materials and devices. He has edited the following books: Ferroelectric Polymers (Marcel Dekker, 1995), Nonlinear Optics of Organic Molecules and Polymers (CRC Press, 1997), Organic Electroluminescent Materials and Devices (Gordon Breach, 1997), Handbook of Organic Conductive Molecules and Polymers, Vol. 1-4 (John Wiley Sons, 1997), Low and High Dielectric Constant Materials Vol. 1-2 (Academic Press, 1999), Handbook of Nanostructured Materials and Nanotechnology, Vol. 1-5 (Academic Press, 1999), Handbook of Advanced Electronic and Photonic Materials and Devices, Vol. 1-10 (Academic Press, 2000), Advanced Functional Molecules and Polymers, Vol. 1-4 (Gordon Breach, 2001), Photodetectors and Fiber Optics (Academic Press, 2001), Supramolecular Photosensitive and Electroactive Materials (Academic Press, 2001), Nanostructured Materials and Nanotechnology (Academic Press, 2001), Handbook of Thin Film Materials, Vol. 1-5 (Academic Press, 2001), and Handbook of Surfaces and Interfaces of Materials, Vol. 1-5 (Academic Press, 2001). The Handbook of Nanostructured Materials and Nanotechnology (Vol. 1-5) edited by him received the 1999 Award of Excellence from the Association of American Publishers.Dr. Nalwa serves on the editorial board of the Journal of

Macromolecular Science-Physics, Applied Organometallic Chemistry (1993-1999), International Journal of Photoenergy,andPhotonics Science News. He was the founder and Editor-in-Chief of the Journal of Porphyrin