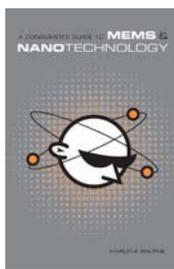


Review of *A Consumer's Guide to MEMS & Nanotechnology*

J. STEVEN RUTT* and MARK MANSOUR**



A CONSUMER'S GUIDE TO MEMS AND NANOTECHNOLOGY

By Marlene Bourne

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The book *A Consumer's Guide to MEMS and Nanotechnology* is written for a general reader. Bourne, who is the president of her own company, Bourne Research LLC, focuses on a review of *existing* products incorporating MEMS and nanotechnology, most of which have been introduced only in the past ten years. The author does not focus on future products. Any discussion of nanotechnology products is taking on an immense subject, as nanotechnology has quietly and steadily become incorporated into our daily lives. Bourne's summary, therefore, is a useful but an ultimately preliminary guide to the 2007 status for nanotechnology commercialization.

Bourne organizes the book by first introducing the reader to nanotechnology and MEMS/NEMS (micro- or nano-electromechanical systems). She then goes on to survey "cool products" in the automotive, home products, consumer electronics, personal care, clothing/accessories, recreation/sports, healthcare, and miscellaneous sectors. Many black and white figures and photos are provided illustrating the products, and the book concludes with a series of more interesting color photographs. Graphs, data and sophisticated technical analysis are not offered, and Bourne stays away from thorny, controversial policy and legal issues, such as health and safety. The historical introduction to the subject is useful but very brief.

The book, therefore, is tuned to the needs of introductory readers. One gets the distinct impression that the primary function of the book is to document hundreds, even thousands of examples of MEMS and nanotechnology found in existing products on the marketplace.

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A secondary function is to introduce the readers to commercial developments with which they may be less familiar. Certainly, any follower of the development of the nanotechnology field struggles to keep up with the hundreds of developments in the marketplace each year. This book is a helpful snapshot, although it will require regular updating in order to remain useful given the rapid changes we are seeing on an almost daily basis. For example, the 2007 Nobel Prize in physics recently was awarded to nanotechnology pioneers, Albert Fert and Peter Grünberg, for discovering the GMR effect, a technology which has become the basis for commercial products for reading data on hard disks. The nanotechnology community should regularly document such exciting developments and the connection between scientific nanotechnology research and commercialization.

In focusing on current consumer products, the book does not address in as much detail as many would like many of the “grander” research themes addressing problems facing our planet, such as nanomedicine, “cleantech,” and synthetic biology, which will benefit society as a whole by targeting various diseases and environmental degradation. Rather, the reader plows through a long litany of products, such as improved luxury car paints, improved cosmetics, swimsuits that repel sand, toys, deodorants, anti-static scarves, and better electronic games. These products are important and worthwhile. However, although Bourne repeatedly calls these products “cool,” one is left feeling that some of the other more groundbreaking nanomedicine, synthetic biology, and cleantech products would have made for a much “cooler” discussion. As it is, much of what appears in the book more appropriately falls under the “interesting” and “good to know” categories.

Other grander themes not addressed include the larger trends underlying these products, particularly U.S. policy issues. For example, is research stemming from the National Nanotechnology Initiative and the U.S. Bayh-Dole system contributing to these products and national competitiveness? How can we continue to invest in product development for products requiring longer development times (i.e., avoid past economic problems where U.S. inventors initiated new technology, but non-US companies commercialized them in the longer term)? Has the patent system been beneficial or detrimental, and what if any patent reforms are needed? Is the U.S. leading the world in nanotechnology commercialization? Clearly, the author deemed these as beyond the purpose of the book.

For a general reader, the book is a good primer. Even for those with more particular expertise and interest in the burgeoning area of MEMS and nanotechnology, this is a useful temporary reference guide.¹ We look forward to more publications that offer a closer look at longer term, consequential products, as well as some of the core seminal issues driving the commercialization of these fascinating technologies. The impact of nanotechnology products on society must be carefully examined and reported, and this book steps toward that goal.

¹ Although it is rather pricey in paperback at the cover price of \$39.95.