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BOOK REVIEW

"Oxide semiconductors for solar energy conversion—titanium dioxide". Author: Janusz Nowotny

CRC Press, Boca Raton, 2012, 393 p., US$ 259.95, ISBN: 978-1-4398-4839-5

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Organic dye cells are presently largely investigated aiming at the development of efficient and cheap devices for environmentally friendly energy generation. Among the different oxides used in such cells, titanium dioxide plays a prominent role due to the high electron collection efficiency. As a consequence, the number of scientific articles reporting investigation of titanium dioxide preparation, characterization, and application is presently quite expressive. But the spectrum of TiO_2 applications is much broader.

In this context, it is nice to see a book written by a single author, in which this knowledge is systematically organized and the different scientific and technological aspects of TiO_2 preparation, characterization, and applications are covered. "Oxide Semiconductors for Solar Energy Conversion—Titanium Dioxide," authored by Janusz Nowotny, is just such a case. The author covers several basic aspects of oxide physics and chemistry and treats specific aspects on basic properties of TiO_2 paying special attention to defects, which in such oxides are highly responsible for oxide physical behavior. Moving to its final target, the author discusses the role of interfaces and applications, including hydrogen generation, water purification, and solar energy conversion.

In my opinion, this book will be very useful for researchers working in one or more of the above-cited subjects. It will allow them to contextualize their works and look for subject interrelationships that provide a broader understanding of their field and the real importance of each of the single given contributions. Also, for young people just entering the field, the organized exposition of the most important results necessary to the understanding of TiO_2 science and technology will pave an easier way in their own research work development.

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