Environmental and Economic Considerations in Energy Utilization

Authors Joseph P. Reynolds, William N. McCarthy, Jr., and Louis Theodore

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Price $49.95

Reviewer Donald A. Daavettila

The proceedings of the Seventh National Conference on Energy and the Environment held in Phoenix on November 30–December 3, 1980, have been published and include 60 papers divided among 11 sessions.

The Preface points out that the proceedings should be of interest to the technologist, engineer, scientist, and a host of others involved with or interested in interactions among the areas of energy, environment, and economics. Most of the papers are on specific interactions such as plume visibility in the energy source recovery or conversion of oil shale, coal, synthetic fuels, uranium, and solar. The rest are on industrial energy usage and conservation, material resource policy, the feasibility of synthetic fuels development, the effect of regulations in developing a price that measures the "true cost to society," and the socio-economic impacts of energy development on Indian reservations.

The point to be made is that a broad range of subjects is covered in the proceedings. Of course the real-life situation is very broad; whereas an individual is either a technologist, engineer, scientist, or one of the host of interested others working in a much narrower area. Hence, when you pick up the book, a quick review simply reminds you of the immensity of interaction phenomena; however, genuine professional interest in more than three sessions is not likely.

It would be a good book to have if one had attended the actual conference where the interactions with the authors and attendees could have put a perspective on articles not directly in one's professional detailed interest area. But for those who did not attend the conference, finding the articles of interest requires scratching around a bit in the table of contents. It's a great book to have in the company library, but likely not so useful (worthwhile) as an individual purchase.

Since 1964, Donald A. Daavettila has been a teacher of nuclear power related courses at Michigan Technological University where he is an associate professor of physics. After receiving his master's degree from Michigan Tech in 1958 through a cooperative thesis program with Argonne National Laboratory, he attended and taught at the International School of Nuclear Science and Engineering at Argonne. Then, following a year as an experimental physicist at the Enrico Fermi Nuclear Plant, he joined the Tech faculty. His interests include environmental effects of power production, radiation measurements, and nuclear waste disposal.

Applied Thermoluminescence Dosimetry

Editors M. Oberhofer and A. Scharmann

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Reviewer James M. Hevezi

There seems to be a flurry of monographs surfacing on the topic of thermoluminescent dosimetry (TLD). A. F. McKinley's *Thermoluminescence Dosimetry* published in 1980 concentrated chiefly on the medical dosimetric application of TLD, pioneered by Farrington Daniels and, later, John Cameron at the University of Wisconsin. Others have concentrated on various and sundry aspects of TLD such as theoretical mechanisms, research applications, etc. The present work is based on two sets of Ispra (Italy) lectures held at the Joint Research Centre in 1977 and 1979 by well-known experts in the field of TLD. For the wide variety of topics covered and personalities involved in its production, I was pleasantly surprised at the continuity the book possessed and the most recent information contained in each chapter. Although each chapter presented a survey of the targeted topic, an extensive, updated bibliography at the chapter's end suggested more in-depth coverage for the reader. Liberal cross-referencing by co-contributors in the document were such that it exhibited a cohesiveness seldom found in such edited works. The flow in the early chapters (History, Theory, Instrumentation, Operational Aspects) set the groundwork for the later extensive discussions concerning applications from medical to archaeological dating. Especially apropos to the present audience were the chapters concentrating on applications to reactor engineering, neutron and high-level flux dosimetry, and, possibly, environmental and personnel monitoring. The place of thermoluminescence relative to other solid state detection methods was surveyed in a separate chapter, and, especially appealing, was a good discussion of precision and accuracy in TLD measurements.

Few of us will be synthesizing our own thermoluminescence crystals soon (we'll buy them from the vendor list on pp. 64 and 65), but an informative chapter on the preparation and properties of the most frequently utilized materials, liberally interspersed with appropriate glow curves, helped put some perspective on the production of these materials. If there is a negative criticism of the work, it is in its attempt at the breadth of coverage of a burgeoned field. However, this is just the stated aim of the editors in presenting recent knowledge of the field, and the book would be well utilized as a survey or reference instrument for users or students. The cost may be somewhat prohibitive for most personal libraries, but it would be money well spent in this case.

James Hevezi received his PhD in 1969 from the University of Notre Dame in experimental neutron physics and has since worked in medical physics at the University of