

## Solar Astronomy

**Solar Maximum Analysis.** P. A. SIMON, Ed. Published for the Committee on Space Research by Pergamon, New York, 1985. viii, 404 pp., illus. \$99.50. *Advances in Space Research*, vol. 4, no. 7. From a symposium, Graz, Austria, June 1984.

**Solar-Space Observations and Stellar Prospects.** J. W. HARVEY, H. S. HUDSON, and R. W. NOYES, Eds. Published for the Committee on Space Research by Pergamon, New York, 1985. vi, 175 pp., illus. \$49.50. *Advances in Space Research*, vol. 4, no. 8. From a meeting, Graz, Austria, June 1984.

The Committee on Space Research (COSPAR), an organ of the International Council of Scientific Unions, sponsors regular topical symposiums in space physics. These two volumes, which are issues of *Advances in Space Research*, the journal of COSPAR, contain the proceedings of meetings concerned with recent progress in solar astronomy.

*Solar Maximum Analysis* presents short contributions on three major topics in solar flare physics: flare buildup, flare energy release, and interplanetary traveling phenomena. These topics were the subjects of international cooperative research efforts during the recent peak of solar activity, August 1979 to February 1981. Observations were made from such satellites as the Solar Maximum Mission, Hinotori, and Solwind, as well as with ground-based radio and optical telescopes.

The reports contain many new and important results on magnetic energy storage, charged particle acceleration, and energy conversion to radiation. For example, M. Hagyard *et al.* have demonstrated convincingly, for the first time, the role magnetic field shear plays in pre-flare energy storage.

The proceedings reflect the unsettled state of the subject, which still lacks a consensus on even the most basic physical mechanisms. Is flare energy carried primarily by electron beams or by thermal conduction? Is emerging magnetic flux crucial to the onset of a flare? A reader will find opposing views on these and other topics, and it makes for stimulating reading. However, the proceedings would have been more valuable to the nonexpert if they had included summary papers that integrated the individual contributions and sharpened the outstanding issues.

*Solar-Space Observations and Stellar Prospects* reports recent progress in two active fields in space solar astronomy (observations of surface magnetic fine

structure and of the solar interior) and in a related field in stellar astronomy (stellar oscillations). Like the other volume, these proceedings consist primarily of short papers on space observations. The short reports here are introduced by one or more major reviews on each topic, which add considerably to the coherence and intelligibility of the whole. In my view, the excellent reviews by J. O. Stenflo ("Fine scale structure of solar magnetic fields"), B. Roberts ("The creation of fine structure by magnetic fields"), and D. O. Gough ("Immediate and long-term prospects for helioseismology") are required reading for astronomers of any stripe. The shorter papers, unfortunately, give only a glimpse of the rich data that observations from space yield. I was especially intrigued by a report by C. Fröhlich and J. A. Eddy of a possible secular increase of the total solar irradiance from 1967 to 1983 amounting to 0.025 percent per year and a corresponding increase of the solar diameter of about 0.033 arc seconds per year.

J. B. ZIRKER

*National Solar Observatory,  
Sunspot, New Mexico 88349*

## Books Received

**Algorithmically Specialized Parallel Computers.** Lawrence Snyder *et al.*, Eds. Academic Press, Orlando, Fla., 1985. xiv, 252 pp., illus. \$26.50.

**American Insects.** A Handbook of the Insects North of Mexico. Ross H. Arnett, Jr. Van Nostrand Reinhold, New York, 1985. xiv, 850 pp., illus. \$79.50.

**Aphasia and Brain Organization.** Ivar Reinvang. Plenum, New York, 1985. xii, 195 pp. \$29.50. *Applied Psycholinguistics and Communication Disorders*.

**Application and Biology.** E. S. E. Southcombe, Ed. BCPC Publications, Croydon, England, 1985 (U.S. distributor, International Specialized Book Services, Beaverton, Ore.). xiv, 312 pp., illus. Paper, \$38. Monograph no. 28. From a symposium, Reading, England, Jan. 1985.

**Applied Differential Geometry.** William L. Burke. Cambridge University Press, New York, 1985. xviii, 414 pp., illus. \$54.50; paper, \$19.95.

**Applied Plant Virology.** D. G. A. Walkey. Wiley-Interscience, New York, 1985. xiv, 329 pp., illus. Paper, \$22.95.

**Arctic Ocean Engineering for the 21st Century.** Ben C. Gerwick, Ed. Marine Technology Society, Washington, D.C., 1985. viii, 234 pp., illus. Paper, \$30. From a symposium, Williamsburg, Va., Oct. 1984.

**An Atlas of Immunofluorescence in Cultured Cells.** Mark C. Willingham and Ira Pastan. Academic Press, Orlando, Fla., 1985. xiv, 186 pp., illus. \$35.

**Atmospheric Ozone.** C. S. Zerefos and A. Ghazi, Eds. Published for the European Communities by Reidel, Boston, 1985. xxxii, 842 pp., illus. \$99. From a symposium, Halkidiki, Greece, Sept. 1984.

**Avian Biology.** Vol. 8. Donald S. Farner, James R. King, and Kenneth C. Parkes, Eds. Academic Press, Orlando, Fla., 1985. xxiv, 256 pp., illus. \$49.50.

**Bacterial Endotoxins.** Structure, Biomedical Significance, and Detection with the Limulus Amebocyte Lysate Test. Jan W. ten Cate *et al.*, Eds. Liss, New York, 1985. xx, 466 pp., illus. \$68. *Progress in Clinical and Biological Research*, vol. 189. From a conference, Amsterdam, May 1984.

**The Banach-Tarski Paradox.** Stan Wagon. Cambridge University Press, New York, 1985. xvi, 253

pp. \$37.50. *Encyclopedia of Mathematics and Its Applications*.

**Basic Organometallic Chemistry.** Containing Comprehensive Bibliography. Ionel Haiduc and J. J. Zuckerman. Walter de Gruyter, Hawthorne, N.Y., 1985. xvi, 488 pp., illus., + index. \$64.90; paper, \$29.90.

**Boophilus microplus.** The Common Tick. Jorge Luis Nuñez, Mario Enrique Muñoz-Cobeñas, and Horacio Luis Moltedo. Springer-Verlag, New York, 1985. xiv, 206 pp., illus. \$69. Translated from the Spanish edition (1982) by Harry Bailie, Constanza Michelsohn, and Cecilia Paris.

**Contributions to the Archaeology and Ethnohistory of Greater Mesoamerica.** William J. Folan, Ed. Southern Illinois University Press, Carbondale, 1985. xxxvi, 334 pp., illus. \$28.95.

**Cool Stars with Excesses of Heavy Elements.** Mercedes Jäschek and Philip C. Keenan, Eds. Reidel, Boston, 1985 (distributor, Kluwer, Hingham, Mass.). xvi, 398 pp., illus. \$54. *Astrophysics and Space Science Library*, vol. 114. From a colloquium, Strasbourg, France, July 1984.

**Crop Protection Handbook.** Grass and Clover Swards. R. D. Williams. BCPC Publications, Croydon, England, 1984 (U.S. distributor, International Scholarly Book Services, Beaverton, Ore.). xii, 105 pp., illus. \$39.

**Databases.** How to Manage Information on Your Micro. Peter Laurie. Chapman and Hall/Methuen, New York, 1985. 139 pp., illus. Paper, \$16.95.

**The Development of Social Cognition.** John B. Pryor and Jeanne D. Day, Eds. Springer-Verlag, New York, 1985. xiv, 239 pp. \$32.

**An Ecological Characterization of the Caloosahatchee River/Big Cypress Watershed.** Richard D. Drew and N. Scott Schomer. U.S. Fish and Wildlife Service, Washington, D.C., 1984. xvi, 226 pp., illus. Paper. FWS/OBS-82/58.2.

**Ecological Considerations in Wetlands Treatment of Municipal Wastewaters.** Paul J. Godfrey *et al.*, Eds. Van Nostrand Reinhold, New York, 1985. xxii, 473 pp., illus. \$37.50. From a workshop, Amherst, Mass., June 1982.

**Economic Theory and the Cities.** J. Vernon Henderson. 2nd ed. Academic Press, Orlando, Fla., 1985. xiv, 274 pp., illus. \$45. *Studies in Urban Economics*.

**Ecosystem Theory for Biological Oceanography.** Robert E. Ulanowicz and Trevor Platt, Eds. Department of Fisheries and Oceans, Ottawa, 1985 (available from Canadian Government Publishing Centre, Ottawa). xiv, 260 pp., illus. Paper, C\$17.95. *Canadian Bulletin of Fisheries and Aquatic Sciences* 213. From a symposium, Ste. Foy, Quebec, March 1984.

**The Effects of Noise on Man.** Karl D. Kryter. 2nd ed. Academic Press, Orlando, Fla., 1985. xii, 688 pp., illus. \$34.50.

**Electrical Machines and Drives.** Worked Examples. John Hindmarsh. 2nd ed. Pergamon, New York, 1985. xviii, 350 pp., illus. \$29.50; paper, \$17.50. *Applied Electricity and Electronics*.

**Electronic Properties of Polymers and Related Compounds.** H. Kuzmany, M. Mehring, and S. Roth, Eds. Springer-Verlag, New York, 1985. xii, 356 pp., illus. \$34.50. *Springer Series in Solid-State Sciences*, 63. From a school, Kirchberg, Austria. Feb. 1985.

**Elements of Digital Satellite Communication.** Vol. 2, Channel Coding and Integrated Services Digital Satellite Networks. William W. Wu. Computer Science Press, Rockville, Md., 1985. xiv, 642 pp., illus. \$49.95. *Electrical Engineering Communications and Signal Processing*.

**Elements of Psychophysical Theory.** Jean-Claude Falmagne. Clarendon (Oxford University Press), New York, 1985. xii, 385 pp., illus. \$59. *Oxford Psychology Series* no. 6.

**Energy Balances and Electricity Profiles 1982.** United Nations, New York, 1985. xvi, 484 pp., illus. Paper, \$41.

**Free Radicals in Biology and Medicine.** Barry Halliwell and John M. C. Gutteridge. Clarendon (Oxford University Press), New York, 1985. xii, 346 pp., illus. \$35.

**Free Rings and Their Relations.** P. M. Cohn, 2nd ed. Academic Press, Orlando, Fla., 1985. xxii, 588 pp., illus. \$80. *L.M.S. Monographs*, 19.

**Freedom in Machinery.** Vol. 1, Introducing Screw Theory. Jack Phillips. Cambridge University Press, New York, 1985. viii, 200 pp., illus. \$59.50.

**Frontiers in Materials Technologies.** Marc A. Meyers and Osman T. Inal, Eds. Elsevier, New York, 1985. xvi, 558 pp., illus. \$109.25. *Materials Science Monographs*, 26.

**Fundamental and Technological Aspects of Organof-Element Chemistry.** Tobin J. Marks and Ignazio L. Fragala, Eds. Reidel, Boston, 1985 (distributor, Kluwer, Hingham, Mass.). xiv, 414 pp., illus. \$56. *NATO ASI Series C*, vol. 155. From an institute, Acquafredda di Maratea, Italy, Sept. 1985.

(Continued on page 687)