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M. S. Longair, *High Energy Astrophysics*, Vol. 1: Particles, Photons and their Detection, second edition, Cambridge University Press, Cambridge, 418 pp., hard cover £45.00/\$69.95, ISBN 0-521-38374-9; paperback £6.95/\$34.95, ISBN 0-521-38774-6.

The second edition of Longair's book is more extensive than the first and therefore it is split into two separate volumes. This first volume deals with the basic processes that can describe high-energy phenomena in the Universe and the detection of the radiation and particles that are produced by this. After a detailed historic review on cosmic rays and high-energy astrophysics several chapters are devoted to ionisation losses, radiation mechanisms, and nuclear interactions. A thorough physical treatment of different detection techniques for high-energy particles, X-rays, and γ -rays is followed by up-dated descriptions of several telescopes like UHURU, GRO, and future missions like AXAF. New in this edition is the treatment of energetic phenomena in the solar system like solar flares and of some of the theory of magnetic fields in general.

The emphasis is laid on cosmic-ray detection and physics throughout the book, but this is done in a way that it can serve both as an education textbook on the whole field of high-energy astrophysics and as a book of reference for the professional astrophysicist. Furthermore, the author has succeeded in maintaining a pleasant informal style that makes the book enjoyable to read.

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Joseph Ventura and David Pines (eds.), *Neutron Stars: Theory and Observation*, Kluwer Academic Publishers, Dordrecht, Holland, NATO ASI Series, Series C: Mathematical and Physical Sciences, Vol. 344, 368 pp., 1990, hardbound Dfl. 270,00/US \$146.00/UK £92.00, ISBN 0-7923-1397-6.

This book contains the proceedings of a NATO Advanced Study Institute (ASI) held in Agia Pelagia, Crete, Greece between 3 and 14 September, 1990. It has sections on observations, emission models and the formation, evolution and interiors of neutron stars. It contains a number of excellent reviews, written by prime experts in their fields, which provide a good entry into some of the recent literature on accreting neutron stars and millisecond pulsars. Inevitably, a book like this covers some of the same ground as other similar volumes. Comparison with the proceedings of the 1988 Advanced Study Institute on the same subject (Vol. 262 in the same series) shows considerable overlap. The present book puts less emphasis on data analysis methods and on classical radio pulsars, and provides extensive

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