

Bookshelf

The Particle Garden, by Gordon Kane: Addison Wesley, ISBN 0-201-40780-9

'Our universe as understood by particle physicists' is the subsidiary title of Gordon Kane's attractive new book. In setting out to present a balanced picture of particle physics, Professor Kane has written the sort of book which could easily motivate a young student to turn to particle physics research. (The author relates how he was turned on by reading a book about Einstein.)

In explaining particle physics wisdom, especially instructive is the distinction drawn in the book between 'Descriptive Understanding', 'Input and Mechanism Understanding' and 'Why Understanding'. The analogy uses a videocassette recorder (VCR): Descriptive Understanding corresponds to being able to work and handle a VCR which did not come with the appropriate documentation; Input and Mechanism Understanding means the ability to fix the VCR unaided if it goes wrong; and Why Understanding confers the ability to invent a VCR and make one.

The book also rues the unfortunate disappearance of the US Superconducting Supercollider megaproject.

An Introduction to Cosmology, by Jeremy Bernstein: Prentice Hall, ISBN 0-13-110504-3

Professor Bernstein is a successful physicist and science writer, and 'An Introduction to Cosmology' benefits from both these skills. It is both a textbook and a good read. The author explains that the book arose from a course he gave at the Stevens Institute of Cosmology. 'Teaching this

course was one of the most pleasant tasks I have had as a professor,' he admits in the introduction. It shows. The physics arguments are well constructed, and the book is packed with anecdotes. The introduction is especially good, and a more general overview in Part 1, although very qualitative, introduces many very useful numerical ideas which help place terrestrial physics in a more humble context.

Fritz London: a scientific biography, by Kostas Gavroglu: Cambridge University Press, ISBN 0 521 43273 1

Fritz London died in 1954 at the age of 54. For thirty years he had made milestone contributions to theoretical physics and chemistry. As a student, London had explored the frontier between philosophy and physics - fertile ground with the difficulties of interpreting the new quantum mechanics. After work under Sommerfeld in Munich, he moved in 1927 to Zurich to work with Walter Heitler, developing the famous quantum theory of molecular bonds. After a period in Berlin with Schrödinger, he fled Germany for Oxford, where with his brother Heinz he proposed the first phenomenological picture of superconductivity. From Oxford he moved to Paris, where he turned his attention to the companion problem of superfluidity. These pictures were influential in the development of the ultimate quantum descriptions, as acknowledged in an 'afterword' to the book by John Bardeen.

This is an informative book about an influential scientist, whose peripatetic career produces some startling reading jolts such as 'Von Laue knew London from Berlin', and 'In 1936 London moved to Paris'.

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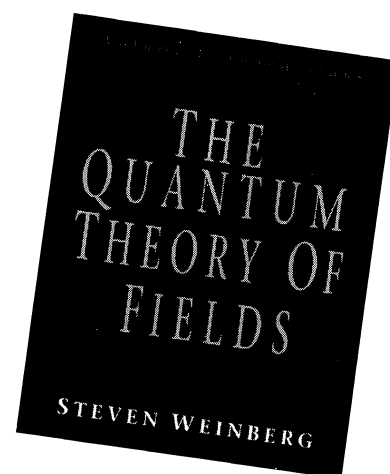
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