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Field-ion microscopy in materials science. By R. WAGNER. Pp. 115. Berlin, Heidelberg: Springer-Verlag, 1982. Price DM 86.00, US\$ 35.90.

This long review article or short monograph constitutes the whole of Volume 6 of the Springer series *Crystals: growth, properties and applications*, edited by H. C. Freyhardt, whose earlier volumes have contained shorter reviews mostly on the growth of semiconductor and oxide crystals. This move towards a single-authored volume which is primarily concerned neither with the growth, properties nor applications of crystals but rather with their examination at a very fine scale might be regarded with reservations were it not for the high level of interest and quality of Dr Wagner's article. Despite continuing advances in electron microscopy and other techniques, the field-ion microscope remains, more than thirty years after its invention by E. W. Müller, the only tool which can routinely show the arrangement of the individual atoms at a solid surface and, combined with time-of-flight mass spectrometry in the so-called atom-probe FIM, reveal their chemical identity: these techniques are restricted in their applicability and are not the easiest to practise but nevertheless they are uniquely powerful. Dr Wagner takes account of the developments in experimental methods and in understanding of the past decade and gives, in the first half of the article, a balanced, critical and very readable summary of the current theory and practice of field-ion microscopy and the atom probe and goes on, in the second half, to concentrate in some detail on the applications of these techniques to structural and analytical problems in physical metallurgy on a scale from 1 to 100 nanometres, this being both the most fruitful field for FIM studies and Dr Wagner's own speciality. To the majority of crystallographers the book may be only of peripheral interest but to those concerned with such topics as the atomic detail of lattice defects, interfaces, phase transformations and disorder in metallic systems it will be a valuable reference to some important and fundamental work not normally classed as 'crystallography'. The book is clearly

written, well produced and well illustrated and should find a place in any wide-ranging crystallographic library.

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Books Received

The following books have been received by the Editor. Brief and generally uncritical notices are given of works of marginal crystallographic interest; occasionally a book of fundamental interest is included under this heading because of difficulty in finding a suitable reviewer without great delay.

High field magnetism. Edited by M. DATE. Pp. ix + 348. North-Holland, 1983. Price US \$46.75, Dfl 110.00. This is the proceedings of an international conference held in Japan, in 1982. The 50-or-so papers report on the physics of the magnetisation process in a great variety of materials, under high-field conditions.

Gravitational radiation. Edited by N. DERUELLE and T. PIRAN. Pp. xxv + 510. North-Holland, 1983. Price US \$68.00, Dfl 160.00.

Theory of fundamental interactions. Edited by G. COSTA and R. R. GATTO. Pp. x + 299. North-Holland, 1982. Price US \$67.50, Dfl 145.00.

Symmetries and properties of non-rigid molecules (*Conference proceedings*). Edited by J. MARUANI and J. SERRE. Pp. xv + 520. Elsevier, 1983. Price US \$117.00, Dfl 275.00.

Uses of synchrotron radiation in biology. Edited by H. B. STUHRMANN. Pp. xii + 348. London: Academic Press, 1982. Price £36.40. A review of this book, by J. R. Helliwell, has been published in the October 1983 issue of *Acta Crystallographica*, Section B, page 656.