be reduced to the manipulation of small matrices whose elements are Green's functions for the host lattice. Their dimensionality is one plus the number of interacting neighbors. This relatively simple structure allows the formal analysis of the model to be carried out in considerable detail and the greater part of this monograph is devoted to doing this.

Chapter I gives the general formulation of the problem in terms of Green's function and discusses the impact of considerations of point symmetry. Chapter II deals with a single impurity in a ferromagnet using the boson approximation to the Hamiltonian. Localized and resonant levels, densities of states, antiferromagnetically coupled impurities, temperature dependences of the spin magnitudes and the effects of different host symmetries are treated. Chapter III takes up the nonmagnetic impurity and interstitials. In Chapter IV the analysis is suitably generalized to systems with multiple sublattices, including the two-sublattice antiferromagnet. Chapter V attempts to treat the problem of the antiferromagnetically coupled impurity in a ferromagnet in more detail without using the boson approximation. The application of a DC magnetic field to the impure system and ferromagnetic resonance occupy Chapter VI. Chapter VII discusses the calculation of certain quantities to the first order in the concentrations of impurities. Neutron scattering and the damping of spin waves are among these. Finally, in Chapter VIII, some of the properties of a system containing impurity pairs are considered. The bibliography does not go beyond 1969. There is no index.

Throughout, the exposition is very clear and thorough; it is essentially self-contained so that it can be recommended to anyone approaching the subject. At the same time it has great value as a general reference work. There are some references to experimental work, but these are neither systematic nor critical.

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Crystallographic groups. By T. JANSSEN, Pp. xiii+ 281. Amsterdam: North Holland. 1973. Price *f* 60.00 (U.S. $ 21.10).

In this excellent book the author introduces crystallographic groups in a modern way, but – despite the title – it is not a book on crystallographic groups. Its contents could be better described by the title 'crystallographic groups in solid-state theory'. Crystallographic groups are not dealt with as such but are used extensively as tools for the solution of solid-state physical problems. A rough estimate shows, that approximately 65 pages, may be considered as mathematical, 96 pages are crystallography, 112 pages are physics, and 18 pages are exercises, bibliography, and index. Therefore, less than one third of the book is really concerned with crystallography in the usual sense.

The author starts with a mathematical introduction (groups, linear algebra, representations). There follows a chapter Group theory and quantum mechanics. The next two chapters are devoted mainly to crystallography (crystallographic point groups and their representations, space groups and their representations), but they include also sections on 'crystal field theory' and 'periodic potentials'. Chapter 5 is concerned with 'Spin and time reversal'. Chapter 6 contains some applications in solid-state physics. Exercises, some appendices on character tables, representations, and space-group tables, bibliography, and an index conclude the book.

The presentation of the contents is clear and concise, following in many respects the way indicated in the papers of Ascher, Janner, and the author. It includes a modern treatment of the crystallographic concepts not yet given in crystallographic text books. Therefore it is highly recommended to crystallographers, although it is not easy to read (i) because it is written in a rather condensed form and (ii) because the author occasionally uses conventions in symbols and setting not normally found in crystallography.

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Space groups and lattice complexes. By WERNER FISHER, HANS BURZLAFF, ERWIN HELLNER AND J. D. H. DONNAY. Pp. 184. Washington: National Bureau of Standards, 1973. Price $4.10.

This book gives in tabular form all possible lattice complexes. A lattice complex is an assembly of points equivalent under some space group, and therefore plays the same role as a site set for point groups. Although the concept is already rather old I have never seen a systematic list of all possibilities. As in other concepts in crystallography there is some confusion about terminology and notation. In 1966 a symposium was held in Kiel to settle these questions, including among the participants some of the authors of these tables. Here again an attempt is made to fix the terminology and the notation. However, in my opinion, this goal has only partially been reached. In the first place many notions are defined, but often in a rather descriptive way: a mathematically rigorous set of definitions is lacking. The notation is according to a long list of rules, but although very ingenious the system is not always very clear; it will require quite an effort from the reader to decipher all stars, dots, double dots, Greek letters, capitals *etc.* Once one has understood the system, however, the tables contain a lot of information.

Related to the background is another point of criticism. 402 different lattice complexes are given, derived from 67 so-called Weissenberg complexes. It does not become clear how this result was obtained or whether the list is really exhaustive.

I don't want to go into details for the sake of criticism. The tables can be very useful for the classification of structures. The printing is neat; there are a few misprints in the text, but I hope not too many in the tables.

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