non-linear mathematical solution for phase transitions in a linear array. The soliton is introduced and discussed in three separate tutorial sections. These are followed by specific experimental evidence of this concept in terms of inelastic neutron scattering data from the planar ferromagnet $CsNiF_3$. This is then followed in the text by two separate papers on (1) theoretical considerations of the creation of non-thermal solitons in a one-dimensional magnetic sine–Gordon system by a time-dependent magnetic field and (2) a system in which solitons are considered as separating portions of different states of local stability. Thus the reader is brought quickly from the introduction of the soliton to the current status of its place in modern theory.

As with a text of this type, each section is written by a separate author and the normal variances in notation, style, and typescript (photo-offset printing is used) are encountered. Most of the papers however are quite lucid, self-contained, and remarkedly error free, again perhaps due to the efforts of the editor.

The book spans a broad range in this growing and exciting field, epitaxial phase transitions, crystal growth, two-dimensional melting, hydrodynamical and electrothermal instabilities, and phason light scattering are all dealt with in detail. Excellent subject and chemical indices will make this text useful not only for those interested in learning the current state-of-the-art in non-linear phenomena at phase transitions, but also for researchers seeking to learn the current status of a specific topic in the field quickly.

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Symmetrien von Ornamenten und Kristallen. By M. KLEMM. Pp. vii + 214. Berlin: Springer-Verlag, 1982. Price DM 36.00, US $16.00.

The title suggests that, apart from mathematicians, crystallographers will be interested in this book. But the flap text and introduction state clearly that the book is written for students of mathematics to give them an opportunity to apply and deepen some basic knowledge on linear algebra and group theory in an attractive topic.

And, indeed, the reader has to be familiar with the famous 'proposition–proof–theorem–proof' style widely used by mathematicians. But, if you are, then the book offers on its two hundred pages a concise treatment of many topics, such as

- definitions of movements, lattices and space groups
- group extensions
- derivation of the two-dimensional symmetry groups
- derivation of all finite point groups in space
- applications of the 32 geometric crystal classes to the tensors of crystal physics
- derivation of the three-dimensional arithmetic crystal classes
- derivation of the 230 space-group types
- ternary quadratic forms and cell reduction
- irreducible representations of space groups (5 pp.).

Furthermore, the book presents some selected results of *n*-dimensional crystallography. Most of the results are completely derived *ab ovo*, and the definitions are in accordance with crystallographic tradition.

So if someone is looking for complete and correct definitions and a presentation of the *algebraic* aspects of space groups, he should read this book. It will not be very helpful in developing what we call an *Anschauung* in German. Crystallographers usually have a good *Anschauung* of their groups, and if some of them want to take a retrospective view on the algebraic formalisms connected with space groups they will read this book with advantage.

Klemm's text enables even its 'crystallographic' reader to continue his studies with the beautiful book of R. L. E. Schwarzenberger, *N-dimensional crystallography* [*cf. Acta Cryst.* (1981), A**37**, 271]. This book appeared in 1980, and some of its really new results on our old groups are presented by Klemm, but it is missing in his list of literature.

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Point group symmetry applications: methods and tables. By P. H. BUTLER. Pp. ix + 551. New York: Plenum Press, 1981. Price US $55.00.

Although the title of this book, and its size, may suggest a comprehensive review of structure and properties of point groups, it treats a more restricted, though very important, subject. The main theme is the role of coupling coefficients, matrices that express a basis of a tensor representation of a group or of a representation subduced from a bigger group in bases of irreducible components. *Via* the Wigner–Eckart theorem these coupling coefficients (sometimes called Clebsch–Gordan coefficients) are very important for calculations of matrix elements of operators with a certain symmetry and are very useful in atomic, molecular and nuclear physics.

The major part of this work consists of tables of coupling coefficients for many of the subgroups of the orthogonal group $O(3)$. These tables are preceded by a clear introduction to the applications of Clebsch–Gordan coefficients and related coupling coefficients (like $3j$, $6j$ and $9j$ symbols) in general and to the use of the tables in particular. Topics are: the *jm* factors and *j* symbols, the Wigner–Eckart theorem, fractional parentage coefficients. Apart from tables for *jm* factors, $3j$, $6j$ and $9j$ symbols there are others with information on structure and characters of the point groups and with symmetry-adapted functions (up to $l = 8$).

In conclusion, the book can be recommended for those who want to do calculations in quantum systems with point-group symmetry, but will not be of much interest to most crystallographers.

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