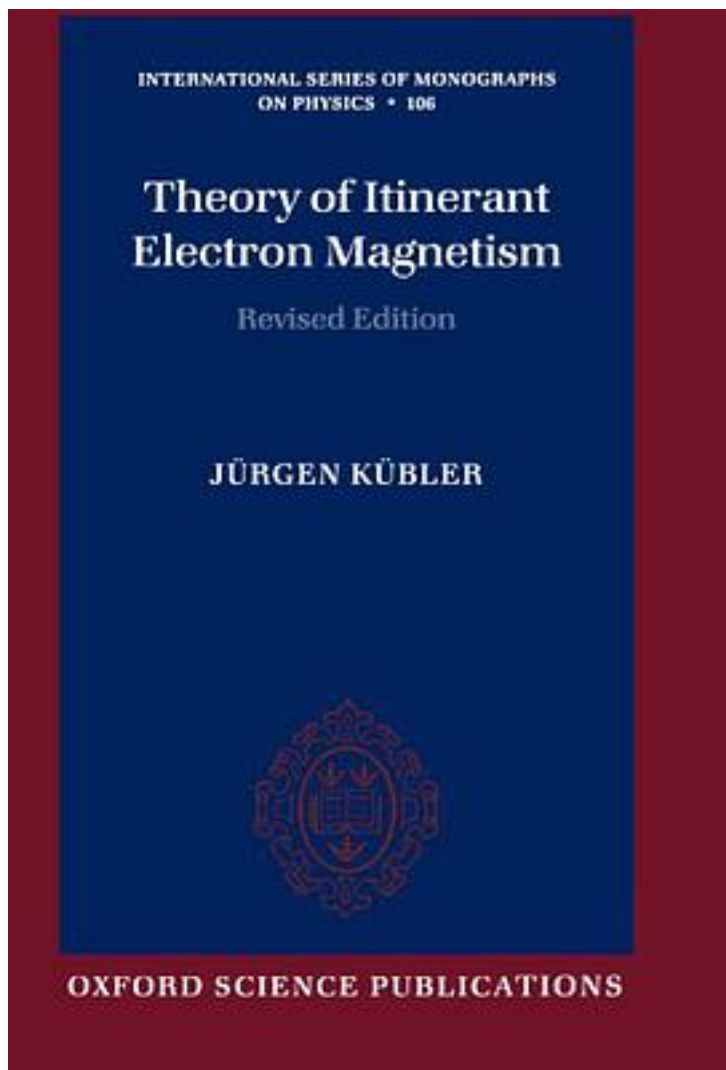


Theory of Itinerant Electron Magnetism



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This book, in the broadest sense, is an application of quantum mechanics and statistical mechanics to the field of magnetism. Under certain well described circumstances, an immensely large number of electrons moving in the solid state of matter will collectively produce permanent magnetism. Permanent magnets are of fundamental interest, and magnetic materials are also of great practical importance as they provide a large field of technological applications. The physical details describing the many electron problem of magnetism are presented in this book on the basis of the local density functional approximation. The emphasis is on realistic magnets, for which the equations describing the many electron problem can only be solved by using computers. The great, recent and continuing improvements of computers are, to a large extent, responsible for the progress in the field. Along with a detailed introduction to the density functional theory, this book presents representative computational method and provides the reader with a complete computer programme for the determination of the electronic structure of a magnet on a PC. A large part of the book is devoted to a detailed treatment of the connections between electronic properties and magnetism, and how they differ in the various known magnetic systems. Current trends are exposed and explained for a large class of alloys and compounds. The modern field of artificially layered systems- known as multilayers- and their industrial applications are dealt with in detail. Finally, an attempt is made to relate the rich thermodynamic properties of magnets to the ab initio results originating from the electronic structure.

作者介绍:

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标签

theory

评论

过了一遍，前面是基础，后面比较前沿，一些比较新的重要的文章也有引用。作者还是力图突出问题和思路，书里内容简明，具体处理还是要看引文。

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书评

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