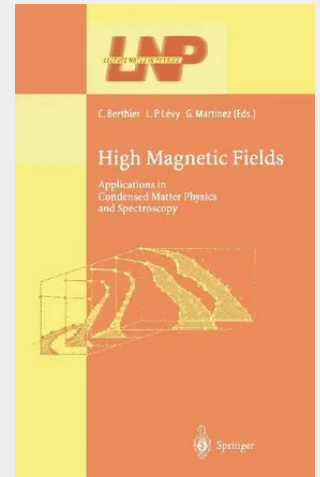


High Magnetic Fields

Applications in Condensed Matter Physics and Spectroscopy

This book is addressed to all scientists interested in the use of high magnetic fields and in the use of high-field facilities around the world. In particular it will help young scientists and newcomers to the topic to gain a better understanding in areas such as condensed matter physics, in which the magnetic field plays a key role either as a parameter controlling the Hamiltonian, or as an experimental tool to probe the underlying mechanism. This concerns mostly strongly correlated and (or) low dimensional systems. Rather than covering all these subjects in detail, the philosophy here is to give essential physical concepts in some of the most active fields, which have been quickly growing in the last ten to twenty years. Besides its role as a physical parameter in condensed matter physics, a large magnetic field is essential to Electron Paramagnetic Resonance (EPR) and Nuclear Magnetic Resonance (NMR) spectroscopies. The state of art of high resolution NMR in liquids and solids and high frequency EPR applied to fields like chemistry and biology are also reviewed in this volume. The first series of chapters is devoted to the integer and the Fractional Quantum Hall Effects (FQHE) in two-dimensional electron systems. C. Glattli brushes an historical background and a comprehensive review of transport phenomena in these systems, including recent developments on the mesoscopic electronic transport at the edges of quantum Hall samples, chiral Luttinger liquids and fractional excitations. R.

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