1. Record Nr. UNISALENTO991001214829707536

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| Autore | Rose, Morris Edgar |
| Titolo | Relativistic electron theory / Morris Edgar Rose |
| Pubbl/distr/stampa | New York : John Wiley & Sons, 1961 |
| Descrizione fisica | 302 p. : ill. ; 24 cm. |
| Classificazione | 53.3.2<br>53.3.3<br>53.3.11<br>539.721<br>QC721 |
| Soggetti | Electrons |
| Lingua di pubblicazione | Inglese |
| Formato | Materiale a stampa |
| Livello bibliografico | Monografia |

2. Record Nr. UNINA9910782396203321

| | |
|---|---|
| Titolo | High magnetic fields [[electronic resource] ] : science and technology . Volume 2 Theory and experiments . 1 / / editors Fritz Herlach, Noboru Miura |
| Pubbl/distr/stampa | New Jersey, : World Scientific, c2003 |
| ISBN | 1-281-92783-X<br>9786611927837<br>981-277-487-4 |
| Descrizione fisica | 1 online resource (280 p.) |
| Altri autori (Persone) | HerlachF <1932-> (Fritz)<br>MiuraN <1941-> (Noboru) |
| Disciplina | 538.7 |
| Soggetti | Magnetic fields - Experiments<br>Magnetics<br>Physics |
| Lingua di pubblicazione | Inglese |
| Formato | Materiale a stampa |
| Livello bibliografico | Monografia |
| Note generali | Description based upon print version of record. |
| Nota di bibliografia | Includes bibliographical references and indexes. |
| Nota di contenuto | CONTENTS; Preface; Quantum Hall Effect: Theory; Theory of Electron-Phonon Interactions in Semiconductors; 1 Introduction; 2 Electron-Phonon Interaction; 3 Cyclotron Resonance Absorption Spectrum; 4 Shallow Impurities in Superlattices; 5 The D - Center; 6 Conclusions; References; Magneto-optics of Semiconductors; 1 Introduction; 2 Experimental Apparatus; 3 Cyclotron Resonance to 500 T; 4 Magnetic Semiconductors; 5 Charged Excitons; 6 Quantum Dots and Wires; 7 Correlated Electron Effects in 2D Systems; References; Phase Coherence in Mesoscopic Systems at High Magnetic Fields; 1 Introduction<br>2 General Considerations3 Dephasing Rates at High Magnetic Field; 4 What Should Be Studied Next?; References; Recent Studies of Quasi-Two-Dimensional Organic Metals Involving High Magnetic Fields; 1 Introduction; 2 2D or Not 2D? Measurements of the Effective Fermi-Surface Dimensionality; 3 The Exotic High-Field Behaviour of the a-(BEDT-TTF)2MHg(SCN)4 (M = K Rb Ti) Salts; 4 Field-Induced Superconductivity; 5 High-Frequency Techniques for High Magnetic Fields; 6 Summary; References; Practical Low Temperature High Field |

Superconductors; 1 Introduction; 2 Early History; 3 Theory of Hc2(T)
4 Selected Experimental Aspects5 Observed Upper Critical Fields; 6 Critical Current Density; 7 Improving Bc2; 8 Practical Low Tc Superconducting Wires; 9 Perspectives; References; Heavy Fermions; 1 Introduction; 2 Change of the Fermi Surface in the Spin-Flip Process of NdIn3; 3 Field-Induced Ferroquadrupolar Ordering in PrCu2; 4 Metamagnetic Transition of the Heavy Fermion Compound CeRu2Si2; 5 Metamagnetic Transition in UPd2Al3 URu2Si2 and UPt3; 6 Conclusion; References; Low Dimensional Magnetic Systems; 1 Introduction; 2 Basics of One-Dimensional Magnetism
3 S = 1 One-Dimensional Heisenberg Antiferromagnets in High Magnetic Fields4 Pure and Doped CuGeOs in High Magnetic Fields; 5 Spin Ladder and Related Materials in High Magnetic Fields; 6 Summary; References; Ultrasonic and ESR Experiments in Pulsed Magnetic Fields up to 50 T; 1 Introduction; 2 Experimental Techniques: Ultrasonics and ESR; 3 Experimental Results; 4 Summary and Outlook; References; High Magnetic Fields in Chemistry; 1 Introduction; 2 Zeeman Effects; 3 Thermodynamic Equilibrium; 4 Macroscopic Forces; References; Atoms and Molecules in Strong Magnetic Fields; 1 Introduction
2 Two-Body Systems in Strong Magnetic Fields3 Electronic Structure of Multi-Electron Atoms; 4 Negative Ions in Magnetic Fields; 5 Molecules in Strong Magnetic Fields; References; Index

Sommario/riassunto

This three-volume book provides a comprehensive review of experiments in very strong magnetic fields that can only be generated with very special magnets. The first volume is entirely devoted to the technology of laboratory magnets: permanent, superconducting, high-power water-cooled and hybrid; pulsed magnets, both nondestructive and destructive (megagauss fields). Volumes 2 and 3 contain reviews of the different areas of research where strong magnetic fields are an essential research tool. These volumes deal primarily with solid-state physics; other research areas covered are biological syst