1. Record Nr. UNINA9910451179703321

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| Autore | Deutscher Guy |
| Titolo | New superconductors [[electronic resource] ] : from granular to high Tc / / Guy Deutscher |
| Pubbl/distr/stampa | Hackensack, New Jersey ; ; London, : World Scientific, c2006 |
| ISBN | 1-281-92787-2<br>9786611927875<br>981-277-492-0 |
| Descrizione fisica | 1 online resource (xxi, 222 p. ) : ill |
| Disciplina | 537.623 |
| Soggetti | Copper oxide superconductors<br>Superconductors<br>High temperature superconductivity<br>Electronic books. |
| Lingua di pubblicazione | Inglese |
| Formato | Materiale a stampa |
| Livello bibliografico | Monografia |
| Note generali | Bibliographic Level Mode of Issuance: Monograph |
| Nota di bibliografia | Includes bibliographical references and index. |
| Nota di contenuto | 1. Superfluidity. 1.1. The Landau critical velocity. 1.2. Origin of the condensate. 1.3. Phase of the condensate. 1.4. Two-Fermion superfluids. 1.5. BCS superconducting metals. 1.6. Summary. 1.7. Further reading -- 2. Coherence length, penetration depth and critical temperature. 2.1. Origin of the coherence length in superconducting metals. 2.2. Experimental methods for the determination of the coherence length. 2.3. Experimental results for the coherence length. 2.4. Penetration depth and critical temperature. 2.5. Further reading -- 3. The phase transition. 3.1. Free energies. 3.2. Fluctuations. 3.3. Condensation energies. 3.4. Summary. 3.5. Further reading -- 4. Phase diagrams. 4.1. Granular superconductors. 4.2. Phase diagram of the cuprates. 4.3. Summary. 4.4. Further reading -- 5. Gap, symmetry and pseudo-gap. 5.1. The BCS s-wave gap. 5.2. Gap symmetry in the cuprates. 5.3. Superconducting gap and pseudo-gap. 5.4. Summary. 5.5. Further reading -- 6. Basics on vortices. 6.1. Vortices and vortex matter. 6.2. The isolated vortex. 6.3. Formation of the vortex lattice. 6.4. Vortex motion. 6.5. Probing surface currents in d-wave superconductors. 6.6. Summary. 6.7. Further reading -- 7. Cuprate |