

1. Record Nr.	UNINA9910777008503321
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 9786611927875 981-277-492-0
Descrizione fisica	1 online resource (xxi, 222 p.) : ill
Disciplina	537.623
Soggetti	Copper oxide superconductors Superconductors High temperature superconductivity
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 superconductors under strong fields. 7.1. Vortex lattice melting. 7.2.

Experiments on vortex phase transitions. 7.3. Summary. 7.4. Further reading -- 8. From fundamentals to applications. 8.1. The need for high critical temperatures and fields. 8.2. High critical temperatures. 8.3. Upper critical fields. 8.4. Practical upper temperature for superconductivity. 8.5. Further reading -- 9. HTS conductors and their applications. 9.1. Grain boundaries. 9.2. First and second generation wires. 9.3. Further reading.
