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Soggetti	Superconductivity Superconductors Optical materials Electronic materials Nanochemistry Ceramics Glass Composites (Materials) Composite materials Spectroscopy Microscopy Strongly Correlated Systems, Superconductivity Optical and Electronic Materials Ceramics, Glass, Composites, Natural Materials Spectroscopy and Microscopy
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Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Andreas Bill, Vladimir Hizhnyakov and Götz Seibold: Electronic phase separation and electron-phonon coupling in cuprate superconductors -- C. W. Chu: The Search for Higher Tc in Houston -- Guy Deutscher: From granular superconductivity to High Tc -- Takeshi Egami: Alex and the Origin of High-Temperature Superconductivity -- Kristian

Fossheim: Encounters with Alex -- Albert Furrer: The Barocaloric Effect: A Spin-off of the Discovery of High-Temperature Superconductivity -- John B. Goodenough: Personal Reflections on High-Tc Superconductivity -- Jürgen Haase: NMR of cuprate superconductors – recent developments -- Jorge E. Hirsch: Towards an understanding of hole superconductivity -- Victor V. Kabanov: Short scale phase separation of polarons -- Hiroshi Kamimura, Osamu Sugino, Jaw-Shen Tsai, and Hideki Ushio: Jahn-Teller-Effect Induced Superconductivity in Copper Oxides: Theoretical Developments -- Rustem Khasanov: Isotope effect on the transition temperature  $T_c$  in Fe-based superconductors: the current status -- Boris I. Kochelaev: Electron paramagnetic resonance in superconducting cuprates -- Vladimir Kresin: Electron-lattice Interaction and High  $T_c$  Superconductivity -- Efthymios Liarokapis: Raman study of the anharmonicity in  $YBa_2Cu_3O_x$  -- Dragan Mihailovic: Inter-site pair superconductivity: origins and recent validation experiments -- Jose Mustre de Leon: Dynamical lattice distortions in high  $T_c$  superconductors -- Hans Rudolf Ott: Exciting Times in Condensed-Matter Physics -- Hiroyuki Oyanagi: Intimacy between local lattice and high temperature superconductivity: Perspective view on undeniable facts -- Ekaterina Pomjakushina and Kazimierz Conder: Chemical aspects of the phase separation in alkali metal intercalated iron selenide superconductors -- Bernard Raveau: Essential Role of Barium for Reaching the Highest  $T_c$ 's in Superconducting Cuprates -- Attilio Rigamonti: Scientific Remembrances and Some Comments -- Costel R. Rotundu, Thomas R. Forrest, Norman E. Phillips, and Robert J. Birgeneau: Method for Accurate Determination of the Electron Contribution: Specific Heat of  $Ba_{0.59}K_{0.41}Fe_2As_2$  -- Toni Schneider: Thermal and quantum critical properties of overdoped  $La_{2-x}Sr_xCuO_4$  -- Alexander Shengelaya: Scientific collaboration with warm relations -- Stephen Weyeneth: Oxygen Isotope Effect Resulting from Polaron-induced Superconductivity in Cuprates.

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### Sommario/riassunto

Authored by many of the world's leading experts on high- $T_c$  superconductivity, this volume presents a panorama of ongoing research in the field, as well as insights into related multifunctional materials. The contributions cover many different and complementary aspects of the physics and materials challenges, with an emphasis on superconducting materials that have emerged since the discovery of the cuprate superconductors, for example pnictides,  $MgB_2$ ,  $H_2S$  and other hydrides. Special attention is also paid to interface superconductivity. In addition to superconductors, the volume also addresses materials related to polar and multifunctional ground states, another class of materials that owes its discovery to Prof. Müller's ground-breaking research on  $SrTiO_3$ .

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