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Titolo	Superconductors at the Nanoscale : From Basic Research to Applications // Roger Wördenweber, Victor Moshchalkov, Simon Bending, Francesco Tafuri
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Nota di contenuto	Frontmatter -- Contents -- Foreword -- Tutorial on nanostructured superconductors / Wördenweber, Roger / Vanacken, Johan -- 1. Imaging vortices in superconductors: from the atomic scale to macroscopic distances / Guillamón, Isabel / Rodrigo, Jose Gabriel / Vieira, Sebastián / Suderow, Hermann -- 2. Probing vortex dynamics on a single vortex level by scanning ac-susceptibility microscopy / Vondel, Joris Van de / Raes, Bart / Silhanek, Alejandro V. -- 3. STM studies of vortex cores in strongly confined nanoscale superconductors / Cren, Tristan / Brun, Christophe / Roditchev, Dimitri -- 4. Type-1.5 superconductivity / Babaev, E. / Carlström, J. / Silaev, M. / Speight, J.M. -- 5. Direct visualization of vortex patterns in superconductors with competing vortex-vortex interactions / Ge, Jun-Yi / Gladilin, Vladimir N. / Gutierrez, Joffre / Moshchalkov, Victor V. -- 6. Vortex dynamics in nanofabricated chemical solution deposition high-temperature superconducting films / Palau, Anna / Rouco, Víctor / Luccas, Roberto F. / Obradors, Xavier / Puig, Teresa -- 7. Artificial pinning sites and their applications / Wördenweber, Roger -- 8. Vortices at microwave frequencies / Silva, Enrico / Pompeo, Nicola / Dobrovolskiy, Oleksandr V. -- 9. Physics and operation of superconducting single-photon devices / Korneev, Alexander / Semenov, Alexander / Vodolazov, Denis / Gol'tsman, Gregory N. / Sobolewski, Roman -- 10. Josephson and charging effect in mesoscopic superconducting devices / Massarotti, Davide / Bauch, Thilo / Lombardi, Floriana / Tafuri, Francesco -- 11. NanoSQUIDS: Basics & recent advances / Martínez-Pérez, Maria José / Koelle, Dieter -- 12. Bi2Sr2CaCu2O8 intrinsic Josephson junction stacks as emitters of terahertz radiation / Kleiner, Reinhold / Wang, Huabing -- 13. Interference phenomena in superconductor-ferromagnet hybrids / Mel'nikov, Alexander / Mironov, Sergey / Buzdin, Alexander -- 14. Spin-orbit interactions, spin currents, and magnetization dynamics in superconductor/ferromagnet hybrids / Linder, Jacob / Jacobsen, Sol H. -- 15. Superconductor/ferromagnet hybrids / Blamire, Mark Giffard -- Index
Sommario/riassunto	By covering theory, design, and fabrication of nanostructured superconducting materials, this monograph is an invaluable resource for research and development. Examples are energy saving solutions, healthcare, and communication technologies. Key ingredients are nanopatterned materials which help to improve the superconducting critical parameters and performance of superconducting devices, and lead to novel functionalities. ContentsTutorial on nanostructured

superconductors Imaging vortices in superconductors: from the atomic scale to macroscopic distances Probing vortex dynamics on a single vortex level by scanning ac-susceptibility microscopy STM studies of vortex cores in strongly confined nanoscale superconductors Type-1.5 superconductivity Direct visualization of vortex patterns in superconductors with competing vortex-vortex interactions Vortex dynamics in nanofabricated chemical solution deposition high-temperature superconducting films Artificial pinning sites and their applications Vortices at microwave frequencies Physics and operation of superconducting single-photon devices Josephson and charging effect in mesoscopic superconducting devices NanoSQUIDs: Basics & recent advances Bi<sub>2</sub>Sr<sub>2</sub>CaCu<sub>2</sub>O<sub>8</sub> intrinsic Josephson junction stacks as emitters of terahertz radiation Interference phenomena in superconductor-ferromagnet hybrids Spin-orbit interactions, spin currents, and magnetization dynamics in superconductor/ferromagnet hybrids Superconductor/ferromagnet hybrids

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