389
Accession number:20114114413546
Title:Low-energy excitations and stripes in superconducting cuprate La 1.87Sr0.13CuO4
Authors:Gorshunov, B.P. (1); Voronkov, A.A. (1); Nozdrin, V.S. (1); Zhukova, E.S. (1); Matsuoka, T. (3); Tanaka, K. (3); Miyasaka, S. (3); Tajima, S. (3); Dressel, M. (4)
Author affiliation:(1) A.M. Prokhorov Institute of General Physics, Russian Academy of Sciences, Vavilov str. 38, 119991 Moscow, Russia; (2) Moscow Institute of Physics and Technology (State University), Institutskii lane 9, 141700 Dolgoprudnyi, Russia; (3) Department of Physics, Osaka University, Osaka 560-0043, Japan; (4) 1. Physikalisches Institut, Universitt Stuttgart, Pfaffenwaldring 57, 70550 Stuttgart, Germany
Corresponding author:Gorshunov, B.P.(gorshunov@ran.gpi.ru)
Source title:Solid State Communications
Abbreviated source title:Solid State Commun
Volume:151
Issue:22
Issue date:November 2011
Publication year:2011
Pages:1681-1685
Language:English
ISSN:00381098
CODEN:SSCOA4
Document type:Journal article (JA)
Publisher:Elsevier Ltd, Langford Lane, Kidlington, Oxford, OX5 1GB, United Kingdom
Abstract:The conductivity and dielectric permittivity spectra of single-crystalline La1.87Sr0.13CuO4 are directly measured with the electric field polarized perpendicular to the CuO planes (E∥c) covering the frequency range 1040 cm-1 and temperatures 5300 K. We observe in the superconducting state a well pronounced excitation with strongly temperature dependent parameters. We suggest that the excitation is caused by the transverse Josephson plasma mode that appears due to the different strengths of Josephson coupling between the superconducting charge stripes in the neighboring and next-nearest neighboring copperoxygen planes of La1.87Sr 0.13CuO4. A strongly enhanced low-frequency (below 15 cm-1) absorption is seen in the superconducting state that is assigned to delocalized quasiparticles of as yet unknown origin.
Number of references:34