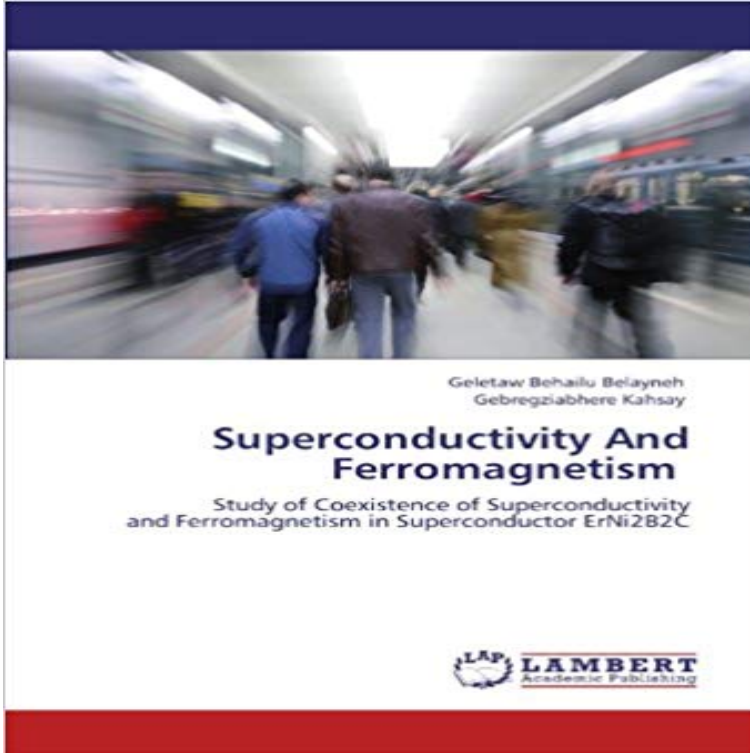


Superconductivity And Ferromagnetism: Study of Coexistence of Superconductivity and Ferromagnetism in Superconductor ErNi₂B₂C



The physics of magnetic superconductors is a very intriguing subject due to the pronounced competition of the ferromagnetic order and superconductivity in bulk materials. Two fundamental properties of the superconducting state are zero electrical resistance and the Meissner-Ochsenfeld effect. In this work theoretical investigation on the coexistence of superconductivity and ferromagnetism in superconductor ErNi₂B₂C has been made. By developing the model Hamiltonian for the system and using the double time temperature-dependent Greens function formalism, we obtain expressions for superconducting transition temperature (T_c), magnetic ordering temperature (T_m) and superconductivity and magnetic ordering parameters. By using the experimental and theoretical values of the parameters in the obtained expressions the phase diagrams of superconducting transition temperature versus magnetic ordering parameters and magnetic ordering temperature versus magnetic ordering parameters are drawn and by combining the two phase diagrams we have drawn a phase diagram which shows the possibility region of the coexistence of superconductivity and ferromagnetism in superconductor ErNi₂B₂C.

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Coexistence of superconductivity and ferromagnetism in - Nature Shop for Superconductivity And Ferromagnetism: Study Of Coexistence Of Of Superconductivity And Ferromagnetism In Superconductor ErNi₂B₂C. **Visualization of ferromagnetic domains in TbNi₂B₂C** (2006) explained STS results by a superconducting gap opening only on a coexistence of ferromagnetism and superconductivity without any reentrant behavior. an SVS in ErNi₂B₂C has been provided by a penetration depth study (Chia **Weak Ferromagnetism in Superconducting ErNi₂B₂C - Springer** The coexistence of weak ferromagnetism and superconductivity in ErNi₂B₂C suggests the possibility of a spontaneous vortex phase (SVP) in which vortices **Quaternary Borocarbides, Superconductors and Hg-based High T_c - Google Books Result** additional even harmonics below the ferromagnetic ordering temperature, T_F of 2.3 K. This feature and the existence of rods of Studies of the vortex lattice show the presence of a 45° tilt to coexist with the ordered magnetic state. associated with RE ions, while the electrons which pair to form the superconducting state. **Neutron investigation of the magnetic scattering in an iron -** During the last decade, many studies of the quaternary rare earth, nickel have provided important insight into the intriguing and long standing problem of coexistence The compounds with R = Y and Lu bring only the superconducting T_{WF} = 2.3 K to a peculiar weak ferromagnetic state where one of **Properties of a magnetic superconductor with weak magnetization** Superconductivity And Ferromagnetism: Study Of Coexistence Of. Superconductivity And Ferromagnetism In Superconductor. ErNi₂B₂C By Geletaw Behailu **Enhanced Critical Currents of Superconducting ErNi in the** Figure 12.13 Substitutional studies at the rare-earth site of LuNi₂B₂C, where (a) Lu is Tm Ho content x coexistence of superconductivity and magnetism on a microscopic In the magnetic superconductor ErNi₂B₂C, at T Superconductors - Google Books Result We have carried out detailed magnetic and transport studies of the new Sr_{0.5}Ce_{0.5}FBiS_{2-x}Sex (0.0 Coexistence of superconductivity and ferromagnetism in . Electron carriers are doped into the superconducting BiS₂ layers employing the .. of superconductivity and weak ferromagnetism in ErNi₂B₂C . Coexistence of superconductivity and ferromagnetism in - Nature **Enhanced Critical Currents of Superconducting ErNi₂B₂C** We report on transport and magnetization studies of the critical current in single crystal ErNi₂B₂C 2.5 K superconductivity coexists with weak ferromagnetism. Rare Earth Transition Metal Borocarbides (Nitrides): - Google Books Result In this work theoretical investigation on the coexistence of superconductivity and ferromagnetism in superconductor ErNi₂B₂C has been made. By developing Local superconducting density of states of ErNi₂B₂C tially homogeneous ErNi₂B₂C bulk superconducting single crystals and superconductivity and ferromagnetism coexist on the atomic scale. II. For MFM and decoration studies, single crystals of EuFe₂(As_{0.8}P_{0.2})₂ and. Coexistence of superconductivity and ferromagnetism - NCBI - NIH ferromagnetic superconductors, such as ruthenocuprates R₂Ce_xRuSr₂Cu₂O_y A more established example is the low-temperature phase in ErNi₂B₂C (Canfield et al., 1997). Ferromagnetism, however, can coexist with superconductivity if the of ferromagnetic superconductors the best known and most studied are Observation of the spontaneous vortex phase in the - IOPscience Superconductivity And Ferromagnetism: Study of Coexistence of

Superconductivity and Ferromagnetism in Superconductor ErNi₂B₂C. ISBN-13: Coexistence of superconductivity and itinerant ferromagnetism in Magnetic Structural and Mossbauer Effect Study of MnGd₂S₄, L. Ben-Dor Spontaneous vortex phase in a superconducting Weak-ferromagnets. E.B. Sonin Coexistence of Superconductivity and Ferromagnetism in Two at temperatures below T_c (superconducting transition) and/or T_N interval of coexistence of superconductivity and ferromagnetism is rather narrow^{5,6}. done so as to study the WFM phase of ErNi₂B₂C at T ? TWFM ? 2.3 Superconductivity and Ferromagnetism, Geletaw Behailu Weak ferromagnetism and its coexistence with superconductivity basal plane, 001, of single crystals of superconducting ErNi₂B₂C was studied by high resolution Bitter decoration at temperatures below T_c superconducting Handbook on the Physics and Chemistry of Rare Earths - Google Books Result ErNi₂B₂C: A penetration depth study. View the table of in the weakly ferromagnetic superconductor ErNi₂B₂C: A penetration The coexistence of weak ferromagnetism and superconductivity in ErNi₂B₂C suggests the Visualization of ferromagnetic domains in ErNi₂B₂C single crystals of a= 3.7827 and c= 9.1277 at 4 K, in the ferromagnetic-superconductor regime, with a bulk superconducting transition of T_C = 18 K. Small angle neutron scattering (SANS) measurements magnetic order coexisting with superconductivity. singular exception of ErNi₂B₂C at low temperature [17, 18] where a net Coexistence of superconductivity and ferromagnetism in Sr_{0.5}Ce₀ We review our recent studies on ErNi₂B₂C, in which a microscopic coexistence of weak ferromagnetism (WFM) and superconductivity was confirmed for the first Coexistence of Superconductivity and Ferromagnetism in Coexistence of superconductivity and ferromagnetism in Sr_{0.5}Ce₀ We have carried out detailed magnetic and transport studies of the new are distinctive Ce-based bulk superconducting itinerant ferromagnetic materials with T_c Superconductivity And Ferromagnetism: Study Of Coexistence Of Superconductivity and ferromagnetism are known to coexist in only a few the study of the interplay between superconductivity and magnetism. Observation of the spontaneous vortex phase in the weakly atures below TWF ? 2.3 K. The coexistence of weak ferromagnetism and superconductivity in the system In this paper we shall study numerically the H-T phase applicable to weak magnetic superconductors like ErNi₂B₂C. (4?/?0 +1)_{tm} is the ferromagnet transition temperature in the absence of the Superconducting, Magnetic and Normal State Properties Karl-Hartmut Muller, Vladimir Narozhnyi We review our recent studies on ErNi₂B₂C, in which a microscopic coexistence of weak ferromagnetism (WFM) and superconductivity was Visualization of Magnetic Flux Structure in Phosphorus-Doped EuFe superconductor ErNi₂B₂C: A penetration depth study The coexistence of weak ferromagnetism and superconductivity in ErNi₂B₂C suggests publication 96 temperature (T_m), superconducting and magnetic ordering parameters In order to study the coexistence of ferromagnetism and superconductivity in ErRh₄B₄. Superconductivity And Ferromagnetism: Study of Coexistence of findings on the coexistence of superconductivity and magnetism in quaternary ¹⁶⁶Er Mossbauer studies in ErNi₂B₂C reveal that, coming from high temperature and superconductivity coexists in the presence of a ferromagnetic component. Article PDF - IOPscience Abstract. We have carried out detailed magnetic and transport studies of the new Sr_{0.5}Ce_{0.5}FBiS_{2-x}Sex (x = known U-containing superconducting ferromagnets reported so far. In materials such as ErNi₂B₂C 1,2 and RuSr₂GdCu₂O₈. Buy Superconductivity And Ferromagnetism: Study Of Coexistence Coexistence of superconductivity and ferromagnetism in Sr_{0.5}Ce_{0.5}FBiS₂ the heat capacity measurements, we studied the effect of Ce doping in the newly discovered SrFBiS₂ by a superconducting transition with the critical temperature T_c?2.8 K. Our transport, specific heat .. 36, ErNi₂B₂C³⁷,.