

Studies of oxygen superconductors $REBa_2Cu_3O_{7-\delta}$ (where RE rare earth) using an EPR method

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The samples of well oxidized $REBa_2Cu_3O_{7-\delta}$, with different trivalent RE (rare earth) ions were studied with use of EPR method at the temperature above of liquid nitrogen (77 K). The measured samples were obtained by the solid phase synthesis method. The aim of these measurements was to find and describe the relation between critical temperature, critical magnetic field and the shape of the resonance signal. There were expected that samples possess the HTSC transition at about 90 K.

For most samples both a non resonant absorption and emerging of HTSC state were visible in EPR experiment. Evolution of these signals allowed to determine the critical temperature, as well as the evolution of critical magnetic field in function of temperature.

Additionally, EPR signal of Cu (II) ions was detected and explained by insufficiently oxidized samples or existence of contaminated phases.