

Penetration depth of alternate magnetic field into yttrium based superconductors

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The alternate magnetic field penetration depths into bulk $\text{YBa}_2\text{Cu}_3\text{O}_y$ superconductor with the critical temperature 90K as well as for YBCO grains were determined from the *a.c.* susceptibility measurements. When the sample is in the Meissner state, the dispersive component of *a.c.* susceptibility and its temperature dependence reflects the changes of the penetration depth at various temperatures. In the ceramic superconductors the penetration depths into bulk superconductors are of the order of a few micrometers and they are comparable to the grains size of the ceramics. On the other hand, the results obtained for the grains are much smaller. The influence of the *d.c.* applied magnetic field on the results was studied via the measurements taken for the zero-field-cooled as well as for the field-cooled samples.