Penetration depth of magnetic field into YBa$_2$Cu$_3$O$_x$ film on polycrystalline Ag substrate

R. Zalecki,$^1$ W.M. Woch,$^1$ M. Chrobak,$^1$ and A. Kołodziejczyk$^1$

$^1$Solid State Physics Department,
Faculty of Physics and Applied Computer Science,
AGH University of Science and Technology, Cracow, Poland

The magnetic field penetration depth into YBa$_2$Cu$_3$O$_x$ film with the critical temperature of 89 K were determined from the a.c. susceptibility measurements. The YBCO film was deposited directly on polycrystalline Ag substrate by the sedimentation process. When the sample is in the Meissner state, the disperssive component of the a.c. susceptibility as well as its temperature dependence reflects the changes of the penetration depth(s) with the temperature. In this film, the penetration depth are of the order of few micrometers.