depolarization rate L (Fig.4) a significant dynamics of the local fields remained well below the magnetic transition. The peak on $L(T)$ in the temperature interval 200-250 K could be caused by some change of either the magnetic or the crystallic structures.

So, the results obtained by each of the different experimental methods had some special features in nearly the same temperature regions. At 300-350 K these features were obviously related with the martensitic and the magnetic transitions. Of course, the preliminary data presented above do not allow to get any definition on the interrelation of the both transitions. They rather demonstrate the perspective of the further study. Besides, some interesting phenomena observed in the region 200-250 K should be also investigated.

REFERENCES

1. *Vintaykin E.Z. et al.,* //Met. Phys and Appl., 1977. V.44(5). 1023.
2. *Sugamoto K.* //J. de Physique, C5. 1981. V.42. 971.

SPATIOTEMPORAL CHAOS AND SELF-ORGANIZATION OF CRITICAL STATE IN TWO-DIMENSIONAL JOSEPHSON LATTICE

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There was shown earlier [1] that the equations for currents in twodimensional Josephson lattice are equivalent to that of two-dimensional sandpile and hence the system is self-organized. In present work [2] we studied these equations and their generalized modifications in stationary state for the case of zero temperature both with closed and open boundary conditions. We found that an open system exhibits spatiotemporal shaos both for deterministic and stochastic source. For a closed system only periodic solutions were found.

REFERENCES

1. *Ginzburg S.L.* //JETP, **106**. 1994. 607.
2. *Ginzburg S.L., Pustovoit M.A.* Preprint PNPI-2070. S.-Pb., 1995. 27 p.

DEPENDENCE OF ELECTRICAL FIELD VECTOR ON THE ANGLE BETWEEN MAGNETIC FIELD AND TRANSPORT CURRENT FOR HTSC CERAMICS

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We have performed detailed measurements of both component of electrical firld vector E_z and E_y for samples of 1–2–3 Y-HTSC ceramics depending on transport current along axis z and on angle α between the external constant magnetic field, applied in plane of sample and direction of current. It should be noted that we could not find other works on

measurements of the $E_y(j,\alpha)$. It was found that E_z poorly depends on $\alpha(E_z(\alpha)/E_z(0) = 0.1$ and $E_y(\alpha)/E_z(0) = 0.1)$.

In low – field electrodynamics there are two possible dependencies. Under low fields an HTSC ceramics is an Josephson media and magnetic field penetration in it is defined by parameter $V = 8\pi j_c a^3/\phi_0$, where a is the grain size, j_c – the critical current density, ϕ_0 – the flux quantum. If $V \ll 1$, then $\lambda \gg a$ (λ is the effective penetration length) and the standard theory of flux – line – cutting (FLC) is applicable. In this theory presents a parametrically large anisotropy of E_z and E_y. For $V \gg 1$ a theory of effective media is not valid, and current – voltage characterictics (CVC) is connected with a penetration of quanta of magnetic field through single contacts and is defined by nonlinear properties of these contacts, which do not depend on the angle α. It results in the isotropic model of CVC. It follows from our data that the second situation is realized.

REFERENCES

1. *Geraschenko O.V., Ginzburg S.L., Sibilev A.I.* Preprint PNPI-2069. 1995. 32 p.
2. *Geraschenko O.V., Ginzburg S.L., Pustovoit M.A., Sibilev A.I.* Neodnorodnie electronnic sostoyaniya-5. Tezisi dokladov. Novosibirsk. 1995.

NEUTRON TOMOGRAPHY EXPERIMENTS FOR THE STUDY OF TRAPPED FLUX DISTRIBUTIONS IN HIGH-T_c SUPERCONDUCTING CERAMICS

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We describe a new version of Neutron Spin Echo, for the study of magnetic flux in high-T_c superconductors, which is based on the evolution of the echo group in the specimen which is installed in the third precession region. The polarization of the transmitted beam reflects the spin rotation in the internal field which can be found by Fourier transforming the data. It is reguired for example, in research on the flux self-organization in the critical state. Experiments on Y–Ba–Cu–O ceramics are discussed [1–2].

REFERENCES

1. *Lebedev V.T. et al.,* // Acta Physica Hungarica 75 (1-4). 1994. P.291–299.
2. *Lebedev V.T. et.al.,* // Physica B 213, 214. 1995. P.990–992.