REVERSIBLE BEHAVIOR OF MAGNETOELASTIC DOMAIN STRUCTURE IN THE LAYERED ANTIFERROMAGNET OF $CoCl_2$-TYPE

E.V. Gomonaj[a], V. M. Loktev[a], S.M. Ryabchenko[b], A.F. Lozenko[b], P.A. Trotsenko[b], V.M. Kalita[b]

[a]National Technical University of Ukraine "KPI", 37, ave Peremogy
Kyiv, 252056, Ukraine
[b]Institute for Physics, NAS of Ukraine, 41, ave Nauki
Kyev, 252056, Ukraine

9.7 cm

Macroscopic magnetoelastic domain structure of the defectless layered antiferromagnet of $CoCl_2$-type with the "easy-plane" magnetic anisotropy is studied theoretically and experimentally. Magnetostriction behavior in the external magnetic field applied perpendicular to the main symmetry axis of the crystal points to the reversible behavior of the domain structure. In assumption of mobile domain walls, the finite-size effects are shown to result in formation of stable domain structure that changes reversibly under the action of the external magnetic field and can be treated as equilibrium. It is found that the domain structure and its collective behavior are governed by elasticity. Calculated field dependence of a domain structure, magnetostriction and low-frequency AFMR of poly- and monodomain sample is in qualitative agreement with the available experimental data.

13.4 cm

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Corresponding author :
Helen Gomonaj

Address for correspondence :
18, Klovskii spusk, apt.74
252021 Kyiv, Ukraine
Phone: +38(044) 241-77-12
Fax: +38(044) 241-77-12

Email address :
malyshen@ukrpack.net