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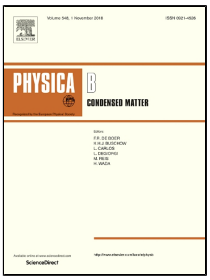

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Study of the quasi – periodic one dimensional domain structure near T_C of TGS crystal by PFM and Hybrid PFM methods

A.L. Tolstikhina[1], R.V. Gainutdinov[1,*], N.V. Belugina[1], A.K. Lashkova[1],

A.S. Kalinin[2], V.V. Atepalikhin[2] , V.V. Polyakov[2], V.A. Bykov[2],

[1] *Shubnikov Institute of Crystallography, Federal Scientific Research Centre "Crystallography and Photonics", Russian Academy of Sciences, Lenisky pr. 59, Moscow, 119333 Russia.*

[2] *NT-MDT Spectrum Instruments, Proezd 4922, 4/3 Zelenograd, Moscow 124460, Russia*

[*]rgaynutdinov@gmail.com

ABSTRACT

The phase transition of ferroelectric triglycine sulfate crystal (TGS) was studied *in situ* with the method of the piezoresponse force microscopy in the contact and hybrid modes. The formation of the metastable quasiperiodic domain structures was observed in narrow temperature range near phase transition. Two-dimensional correlation functions calculation allows to determine structure period and to analyze domain dynamics near Curie temperature T_C.

Keywords: piezoresponse force microscopy, ferroelectric, triglycine sulfate, phase trasition, domain structure

1. INTRODUCTION

Triglycine sulfate single crystal (TGS) is a well-known classical uniaxial ferroelectric going trough the second order phase transition (Curie temperature $T_c \approx 49$ °C) with symmetry change. There is a large amount of works on the study of phase transition due to the abnormal behavior of various parameters of TGS as it approaches T_c. The measurements of the temperature behavior of thermodynamic variables such as spontaneous polarization, heat capacity, dielectric susceptibility, etc. were found a power-law dependences near the transition point [1, 2]. This temperature range is