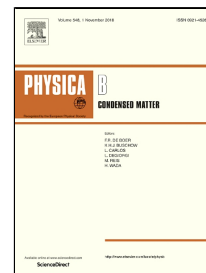


Accepted Manuscript

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PII: S0921-4526(18)30598-2

DOI: 10.1016/j.physb.2018.09.025

Reference: PHYSB 311065

To appear in: *Physica B: Physics of Condensed Matter*

Received Date: 05 December 2017

Accepted Date: 16 September 2018

Please cite this article as: A.L. Tolstikhina, R.V. Gainutdinov, N.V. Belugina, A.K. Lashkova, A.S. Kalinin, V.V. Atepalikhin, V.V. Polyakov, V.A. Bykov, Study of the quasi – periodic one dimensional domain structure near T_C of TGS crystal by PFM and Hybrid PFM methods, *Physica B: Physics of Condensed Matter* (2018), doi: 10.1016/j.physb.2018.09.025

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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

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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 transition, domain structure

1. INTRODUCTION

Triglycine sulfate single crystal (TGS) is a well-known classical uniaxial ferroelectric going through 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

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