## Crystal Relief Investigation under the X-ray Diffraction on Surface Acoustic Wave in Bragg-Laue Grazing Geometry

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The intensity of X-ray radiation diffracted from a monocrystal in Bragg-Laue grazing geometry when the reflecting planes slightly differ from surface normal, allows to carry out the topographical observation of crystalline defects in near-surface superfine layers [1]. In the case of crystal surface modulation by acoustic wave the sensitivity of the method may become much better. In the ordinary Bragg geometry Rayleigh surface acoustic waves (SAW) can focus the incident X-ray wave [2]. In the case of the standing SAW there is no need of a stroboscopic technique of synchronization.

In the present paper the influence of crystal relief on focused image forming under the diffraction of X-ray radiation in Bragg-Laue grazing geometry is studied. The analysis of the intensity distribution in the diffracted wave averaged by time for the standing SAW shows that in the nearest zone of diffraction a focusing from the SAW concave parts occurs. It is shown that separate regions of the crystal relief which are characterized by local sizes and curvature radius, essentially change the registered image in local part of the topogram. The sensitivity of he method is about nanometer. At the same time the focal image of SAW serves as a scale reference point for the crystal relief characteristics determination.

[1] Aleksandrov P.A., Afanasiev A.M., Stepanov S.A., *Phys. Stat. Sol.(a)*, 1984, **86**, 143. [2] Cerva H., Graeff W., *Phys. Stat. Sol. (a)*, 1984, **82**, 35.

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