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## X-ray Diffraction in Different Crystal Cuts Under a Temperature Gradient

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The peculiarities of X-ray diffraction from atomic planes of the same family in different cuts of quartz single crystals under the temperature gradient are investigated. Quartz single crystals have the form of rectangular parallelepiped plates with X- and Z-cuts, one edge of which (heated) was oriented parallel to the reflecting planes (1010). The experiments were carried out using collimated polychromatic X-rays in symmetric Laue geometry.

For different values of the temperature gradient applied to the crystal, both sectional topograms at different distances from the crystal and spectra of the reflected beam were obtained. The research results showed that the parameters of the deformation field formed at the same temperature gradient applied perpendicular to the reflecting planes (101<sup>-</sup>0) of the crystal with different cuts are significantly different.

The bending radius of the reflecting atomic planes (101<sup>-</sup>0) was determined depending on the value of the applied temperature gradient for different cuts of the crystal. It was shown that for the same values of the temperature gradient applied to the single crystal, the bending radius in the X-cut sample is always significantly smaller than the bending radius of the Z-cut sample.

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