

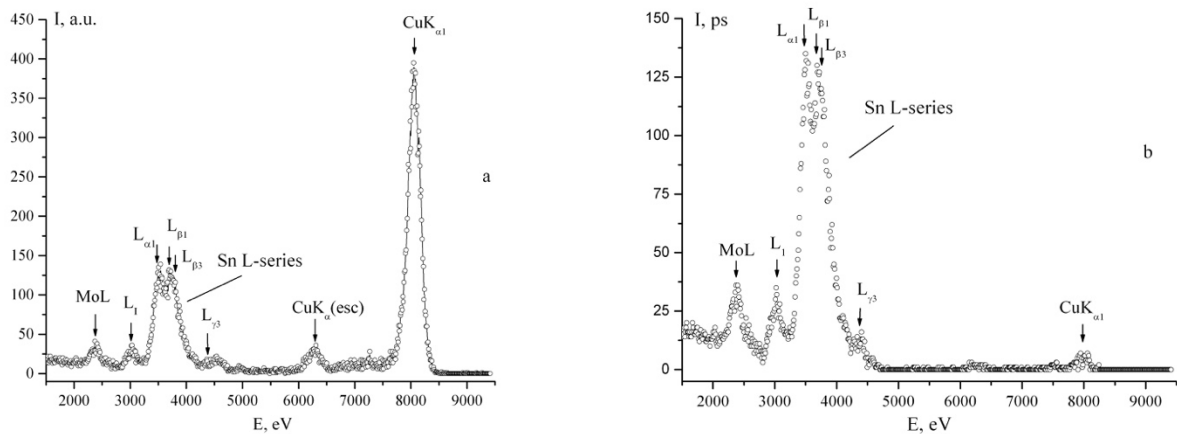
# The Energy Dispersive Scheme of X-Ray Fluorescence Analysis with a Crystal Polarizer and Polycapillary Optics

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Effective polarization scheme based on polycapillary optics and a diamond crystal polarizer is demonstrated. The scheme provides suppression of the background of scattered radiation in measuring X-ray fluorescence spectra. A quasi-parallel X-ray beam with an angular divergence of 4,2 mrad was formed by a microfocus source with a copper anode and polycapillary half-lens. Simultaneous polarization and monochromatization of radiation was obtained with a crystal of natural diamond, which was set at the diffraction reflection (113). The degree of polarization of  $CuK_{\alpha 1}$  spectral line and the maximum radiation flux were respectively equal to 99,86% and  $5 \cdot 10^6$  photon $\cdot$ s $^{-1}$ . In the direction orthogonal to the plane of diffraction, the maximum attenuation of the background was up to 19 dB.



Fluorescence and scattering spectra from the *Sn* foil excited by the  $CuK_{\alpha 1}$  line : full spectrum in the plane of diffraction(a); orthogonal to the plane of diffraction (b).