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8-7**QUASIMONOCROMATIC BEAM OF PARAMETRIC X-RAY RADIATION FOR CONTROL OF HEAVY ELEMENTS**

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Possibility to use quasimonochromatic X-ray beam of parametric X-ray radiation (PXR) in the X-ray locator for control and location of heavy elements is considered. The locator should operate with a tunable quasimonochromatic polarized X-ray beam in the energy range up to about 130 keV to cover all atomic energies of heavy elements. The effect of PXR from relativistic electrons moving through a crystal will be used in the X-ray generator of a quasimonochromatic, polarized, tunable X-ray beam. Therefore, the locator is based on a linear electron accelerator that provides the electron beam with energy of about several tens of MeV. The response signal of characteristic K-lines of X-ray radiation from the object under inspection is registered by spectrometric X-ray detector. The locator is able to detect of heavy elements at a tentative distance up to about several meters for several minutes. The paper became possible partially due to Grant 1030 from Science and Technology Center in Ukraine.

Key words: X-ray locator, quasimonochromatic X-ray beam, heavy elements

8-8**APPLICATION OF THRESHOLD DETECTORS FOR INCREASING OF THE CONTRAST IN X-RAY IMAGES**V.V. Sotnikov, V.A. Voronko, A.V. Shchagin, V.M. Sanin
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Efficiency for application of threshold detectors for improvement of contrast in X-ray images in monochromatic X-rays is considered. The threshold detectors would allow to eliminate registration of X-rays with energy below of the energy of incident X-ray beam. Therefore, scattered photons will not be registered and contrast will be increased and/or total dose may be reduced. Calculations were performed for different energies of incident X-ray beam with taking into account of the spectral width of incident X-ray beam and energy resolution of the detector. It is shown, that application of the threshold detectors would allow provide significant improvement of the image contrast at the same dose or decrease dose at the same contrast.

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Key words: X-ray image, contrast, X-ray beam, threshold detector.



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