

## Energy-dispersive absorption spectroscopy of X-ray photoabsorption K-jumps of xenon for radiological diagnostics

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Received 14.04.2023; revised 10.05.2023; accepted 15.05.2023

*The possibility of energy-dispersive absorption spectroscopy application with a semiconductor X-ray spectrometer for diagnostics of pulmonary pathologies with xenon contrast agent is shown. The gas filled volume in the transmitted area of the object is determined by analyzing the spectrum in the X-ray photoabsorption K-jump region of Xe. Transmission spectra through a plastic phantom filled with a gas mixture of xenon and air, as well as combined objects in the form of a phantom and bone or tissue equivalent inserts are presented. The method provides reliable determination of the local ventilation parameters of the contrasted area and the possibility of the absorbed dose reduction by more than three orders of magnitude compared to X-ray computed tomography.*

**Keywords:** absorption spectroscopy, K-jumps, xenon, X-ray diagnostics.

DOI: 10.51368/1996-0948-2023-4-16-21

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