# Chemical composition analysis for X-ray transport container scans.

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It is important for national security to control the movement of dangerous or strategically cargo such as explosives, radioactive materials, rare and precious metals. This control can be provided by scanning transport containers by gamma rays.

In this report the existing technique for scaning (dual energy method) is considered and the alternative method based on measuring the energy distribution of gamma rays is proposed. For estimation perspectives of the proposing method, the corresponding simulation was conducted by using the GEANT4 toolkit. The example of the algorithm of reconstruction the chemical composition of the scanned object is also considered. In addition the experiment for estimation energy resolution of the detector based on a scintillation crystal BGO and SiPM was carried out.