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Background X-Ray Scattering in Wavelength Dispersive Absorptiometry

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The detailed information about x-ray spectrum is of highly importance for the x-ray analysis, especially for a used standardless algorithm. This paper provides a comparison between simulation results and experimental studies of the background X-ray scattering performed for the dual wave x-ray absorptiometry where integral value of the background plays a dominant role. In this case, the scattering background radiation achieves values of the order of the useful signal that leads to undesirable increase in the load of detector [1]. This problem is suggested to solve by reducing the background radiation using wave dispersion scheme and high-speed counters [2]. Experiments were carried out using a scintillation counters based on silicon photomultipliers [3] allowed to achieve the counting rate over 10⁷ of pulses per second, which is highly relevant in terms of increasing the intensity of modern light sources. The simulation results using Monte-Carlo techniques have been obtained using the Geant 4 [4].

References

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