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Development of energy-resolved X-ray scanners for contaminant detection: results from the AVATAR X project

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The importance of energy-resolved photon counting (ERPC) systems for quality enhancements in X-ray images is now widely recognized. Due to the energy-dependence of the X-ray attenuation processes, spectral X-ray imaging represents a key tool for high resolution material detection and quantitative analysis, especially for medical diagnosis and non-destructive testing (NDT) in security and food industry. Recently, in the framework of the AVATAR X project (funded by the Italian Ministry for University and Research), we developed ERPC systems based on sub-millimetre CZT linear array detectors for contaminant detection in food industry. In this work, we will present the main results obtained from the developed ERPC prototypes, in terms of both detector and X-ray imaging performance.

Summary

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