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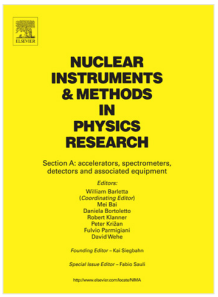

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Spectral and Dual-Energy X-ray Imaging for Medical Applications

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Abstract

Spectral imaging is an umbrella term for energy-resolved x-ray imaging in medicine. The technique makes use of the energy dependence of x-ray attenuation to either increase the contrast-to-noise ratio, or to provide quantitative image data and reduce image artefacts by so-called material decomposition. Spectral imaging is not new, but has gained interest in recent years because of rapidly increasing availability of spectral and dual-energy CT and the dawn of energy-resolved photon-counting detectors. This review examines the current technological status of spectral and dual-energy imaging and a number of practical applications of the technology.

Keywords: X-ray imaging; Spectral imaging; Dual energy; Computed tomography; Mammography; Radiography

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