Title (en)

APPARATUS FOR FAST DETECTION OF X-RAYS

Title (de)

VORRICHTUNG ZUM SCHNELLEN NACHWEIS VON RÖNTGENSTRAHLEN

Title (fr)

APPAREIL POUR LA DETECTION RAPIDE DE RAYONS X

Publication

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Application

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Abstract (en)

[origin: WO0144792A2] This invention relates to the field of X-ray inspection systems and more particularly to those that use X-ray diffraction to analyse an object under inspection. X-ray diffraction has long been used as an aid to structural analysis and information about a diffracting material is commonly derived by one of two methods: energy dispersion or angular dispersion. Essential to prior art diffraction systems employing angular dispersion is the provision of a monochromatic incident X-ray beam. Conventionally, this is provided by filtering out the desired spectral peak from a polychromatic or quasi-monochromatic X-ray beam by means of the balanced filter technique. There are disadvantages to this technique in that it requires two diffraction images to be subtracted from one another in order to get the desired spectral peak. This results in beam attenuation and data of poor statistical quality. The invention proposes the use of an array of semiconductor detector elements and associated electronics which are capable of extracting an essentially monochromatic diffraction pattern from scattered polychromatic or quasi-monochromatic X-rays.

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