

1. Record Nr.	UNINA9910484580303321
Autore	Hayashi Hiroaki
Titolo	Photon counting detectors for x-ray imaging : physics and applications // Hiroaki Hayashi [and five others]
Pubbl/distr/stampa	Cham, Switzerland : , : Springer, , [2021] Â©2021
ISBN	3-030-62680-6
Edizione	[1st ed. 2021.]
Descrizione fisica	1 online resource (XI, 119 p. 99 illus., 86 illus. in color.)
Disciplina	539.77
Soggetti	Photon detectors
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Generation of X-rays -- Introduction to physics in medical X-ray diagnosis -- Radiation Detector Physics -- Material Identification Method with the Aim of Medical Imaging -- Summary.
Sommario/riassunto	This book first provides readers with an introduction to the underlying physics and state-of-the-art application of photon counting detectors for X-ray imaging. The authors explain that a photon-counting imaging detector can realize quantitative analysis because the detector can derive X-ray attenuation information based on the analysis of intensity changes of individual X-ray. To realize this analysis, it is important to consider the physics of an object and detector material. In this book, the authors introduce a novel analytical procedure to create quantitative X-ray images for medical diagnosis. Provides a detailed explanation of the principle of imaging using an energy integrating detector (EID) which is currently being used as an X-ray imaging detector in medicine; Provides a single-source reference that enables readers to understand photon-counting techniques, including the underlying basic physics, specific physics of the detector, novel analytical procedure and future scope; Includes necessary background information and state-of-the-art applications; Demonstrates procedure using a simulation study and a proto-type imaging detector; Presents information in a manner which makes it easier for readers to reproduce results.

