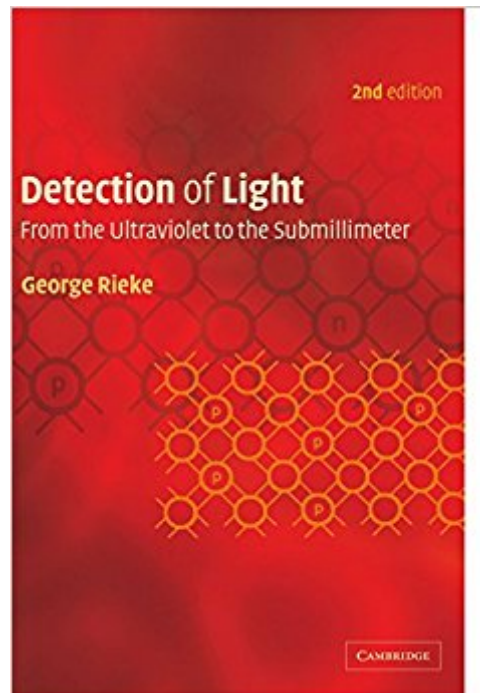




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Detection Of Light: From The Ultraviolet To The Submillimeter



Synopsis

Detection of Light provides a comprehensive overview of the important approaches to photon detection from the ultraviolet to the submillimeter spectral regions. This expanded and fully updated second edition discusses recently introduced types of detector: superconducting tunnel junctions, hot electron bolometer mixers, and fully depleted CCDs. It also includes historically important devices such as photographic plates. Material from many disciplines is combined into a comprehensive and unified treatment of the detection of light, with emphasis on the underlying physical principles.

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"This book could serve as a supplementary text in graduate spectroscopy course. Each chapter is provided with problems." Applied Spectroscopy

Detection of Light provides a comprehensive overview of the important approaches to photon detection from ultraviolet to submillimeter spectral regions. This expanded and fully updated second edition discusses recently introduced types of detector such as superconducting tunnel junctions, hot electron bolometer mixers, and fully depleted CCDs. Material from many disciplines is combined into a comprehensive and unified treatment of the detection of light, with emphasis on the underlying physical principles. This self-contained text assumes only an undergraduate level of physics, and is suitable for advanced undergraduate and graduate students.

The author covers a wide variety of detectors, and devotes some considerable amount of space to less standard detectors (e.g. blocked impurity band) which are hard to find in textbooks. The level is above a Physics Today or IEEE Spectrum exposition, but less than in a good monograph of the Semiconductors and Semimetals series type. Would be good for courses based primarily on describing detectors for astronomy or scientific instrumentation. However, does not give much coverage to HgCdTe, a workhorse in the 3-5 and 8-12 micron ranges, and does not cover some fairly standard descriptions (e.g. RoA product) of noise for such detectors. Also not very useful for photodiodes for telecom, and the descriptions of avalanche photodiodes and things like $1/f$ noise are skimpy at best. The author gets points for at least trying to cover readout issues and for often giving simple quantitative models describing the physics behind many types of detectors in a short readable format.

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