

### **radiation detector**

A device in which incident radiation produces a measurable effect.

If this effect is a rise in temperature it is called a thermal detector. If it is a rise in pressure it is called a photoacoustic detector. In the case where an electrical signal is produced it is called a photoelectric detector. Photoelectric detectors can be classified as photo-emissive detectors and semiconductor detectors. Where the radiation produces a chemical reaction, it is termed a photochemical detector.

A detector yielding an output signal that is independent of the wavelength of the radiation over a specific region is called a nonselective detector. Where it is wavelength specific it is a selective detector. A detector having a quantum efficiency independent of the wavelength is a nonselective quantum counter.

Certain detectors are able to distinguish between different quantum energies. This property is described by the energy resolution  $\Delta E$  and the energy resolving power  $E/\Delta E$ . These detectors are called energy dispersive detectors. In X-ray spectroscopy, the reciprocal  $\Delta E/E$  is often used but this is discouraged.

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