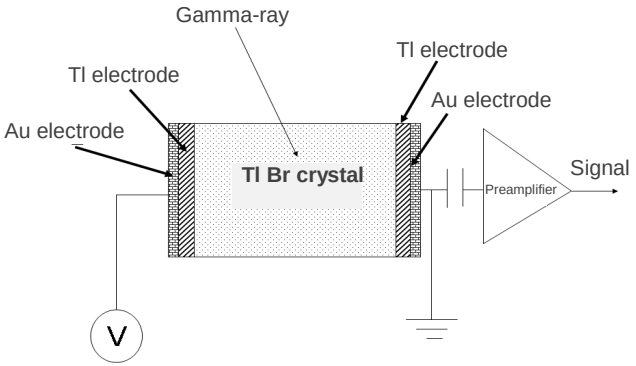
Tohoku Univ. Technology

Permanent use type Thallium bromide radiation detector

Both PET and conventional radiation detectors can prevent polarization and can be used for a long time

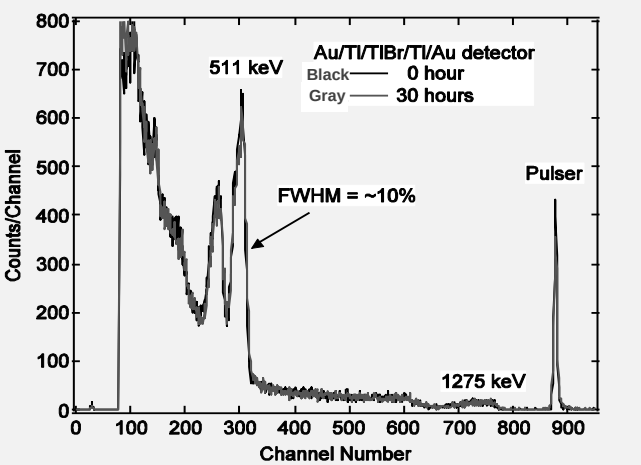


[Fig. 1] Schematic structure showing a thallium bromide radiation detector according to the present invention with an Au-covered Tl electrode

Overview

The present invention relates to a thallium halide radiation detector such as thallium bromide (TlBr) used in a positron tomography imaging diagnostic apparatus (PET), a single-photon radiation computed tomography apparatus (SPECT), and the like, and to PET or SPECT equipped therewith.
On the background of PET, a radiation detector using a CdTe crystal is used for a high-performance type detector, but it has a problem that it is a covalent crystal, has a high melting point, and is expensive to fabricate. For example, the price of only a crystal per device is expensive at several hundred million yen. Therefore, thallium halide such as TlBr, which is inexpensive, has attracted attention as an alternative material to CdTe.
According to the present invention, since conduction ions in thallium halide crystals such as TlBr do not cause polarization phenomena in the detector, an inexpensive thallium halide radiation detector with a long lifetime can be obtained. In addition, the present invention is applicable to general radiation detectors, not limited to PET.

Features・Outstandings



30 hours after the voltage is applied, the spectrum remains unchanged and no polarization phenomenon occurs.

[Fig. 2] 22Na Spectra Measured with Au/Tl/TlBr/Tl/Au Radiation Detector

Effect

- Can prevent polarization and can be used for a long time

IP Data

IP No.	:	JP5083964
Inventor	:	ISHII Keizo, HITOMI Keitaro, SHOJI Tadayoshi, KIKUCHI Yohei
Admin No.	:	T07-141

Contact

Tohoku Techno Arch Co., Ltd.
Please visit CONTACT here