

A Genuinely Novel Method to Identifying Gamma Rays in Region of Infrared Spectrum

Abstract As photons enter a mineral, some are reflected from grain surfaces, some pass through the grain, and some are absorbed. Those photons that are reflected from grain surfaces or refracted through a particle are called scattered. Scattered photons may encounter another grain or be scattered away from the surface so they may be detected and measured (a major part of the CTBTO activity). Infrared spectrometry works by analyzing the number of infrared photons and the amount of energy found in infrared photons absorbed by the molecule which depends on the energy of the vibrational molecules. Gamma ray is one type of photon with high energy which changes other molecules' energy. So the changing of energy in molecules would be detected by infrared spectroscopy. It is very useful for detecting a region with radiative activity when the gamma ray affects the surrounded material. Some satellites (Hyperion, Aster) and hyperspectral airborne sensor (aviris) may be use to show the gamma ray affects by changing the spectrum, especially in the region of infrared. This method is very applicable when the gamma rays cannot reach gamma detector or can be used to reduce cost of scanning purpose area.

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