

A New Method to Identifying Radioactivity in the Region of Infrared

Last theoretical study on the effect of gamma radiation on natural rocks shown their spectrum in infrared region will affected by radiation (Ejtehadi et al., SNT 2017). Infrared spectrometry works by analyzing 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 another molecules' energy. So the changing of energy in molecules would be detected by infrared spectroscopy. It is very useful for detecting a region with radioactivity when the gamma ray affects the surrounded material (a major part of the CTBTO activity). The recent laboratory and field study on K-Feldspar granitic rock sample (a rock capability contains Uranium) with natural irradiation in the warm spring of radium radiation level of 86 in Talesh-Mahale (Ramsar Province in Iran) has shown significant changes in 500 to 2500 wavelength/nm area and peaks of 1450, 1950 and 2300 nm. Some satellites and airborne sensors may be use to show the gamma ray affects by changing the infrared spectrum. This method is very applicable in absence of gamma detector or can be used to limiting scanning purpose area.

Primary author: EJTEHADI, M.Mahdi (Shahid Beheshti University of Tehran, Iran)

Presenter: EJTEHADI, M.Mahdi (Shahid Beheshti University of Tehran, Iran)

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