

X-ray fluorescence analysis of low concentrations metals in geological samples and technological products

Wednesday, 7 October 2015 15:15 (15)

At the last years were designed many nuclear physics methods of matter elemental analysis. Many of these methods have received a complete hardware decision and became an advantage of many industrial laboratories. Measurement methods of matter composition are based on the X-ray intensity detection from the nuclei of elements which are excited by external X-ray source. The production of characteristic x-rays involves transitions of the orbital electrons of atoms in the target material between allowed orbits, or energy states, associated with ionization of the inner atomic shells. One of this methods is X-ray fluorescence analysis, which is widespread in metallurgical and processing industries and is used to identify and measure the concentration of the elements in ores and minerals on a conveyor belt. In this work for the calibration curve construction is used coupling equation. Samples of copper ore with a known concentrations of elements, were taken from the Ural deposit. To excite the characteristic X-rays were used radionuclide sources Cd-109, with half-life 461,4 days. After finding the calibration coefficients, have been made control measurements of samples and averaging of over all samples. Measurement error did not exceed 1.1%.

Presentation type

Section talk (10+5 min)

Primary author(s) : Mr. TRUSHIN, Arseny (Moscow Engineering Physics Institute); Mr. LAGOIDA, Iliya (Moscow Engineering Physics Institute)

Presenter(s) : Mr. LAGOIDA, Iliya (Moscow Engineering Physics Institute)

Session Classification : Methods of experimental physics - parallel IV

Track Classification : Methods of experimental physics