X-Ray analysis of meteorite

Hontsova S.S., *stud.*; Maksimova E.M., *PhD*
V. Vernadsky Taurida National University,
4, Vernadsky Ave., 95007, Simferopol, Ukraine

Meteorites are one of the most accessible objects of extraterrestrial matter. Therefore the study of the structural features and physical properties of crystals of meteorites can provide information about the formation of the crystal structure of matter in extraterrestrial conditions. In addition, the study of the structure of extraterrestrial matter is extremely useful for obtaining new knowledge about the processes of evolution of matter in the solar system, as well as for modeling and finding ways to creating the conditions in the Earth's for production different crystals,similar cosmic[1].

The study of sample of meteorite on X-ray diffractometer "DRON-3" with copper radiation was made [2]. Survey was carried out in the range of 2θ angles from 10° to 100°. As an external standard was used polycrystal halite.Can be argued that the investigated sample is iron meteorite - kamacite, bcc crystal with a lattice parameter: a=2,848± 0,006 Å. Kamacite or nickel-iron - native iron of cosmic origin [3]. Also in studied meteorite contains minerals troiliteFeS, schreibersite Fe_2NiP and tephroite Mn_2SiO_4.

Was investigated the chemical composition of the sample surface of meteorite:91,88% Fe; 0,68% Ca; 2,04% Si, 0,5% Mn; 4,9% Niand inside the meteorite: 93,12% Fe, 6,15% Ni, 0,4% Co; 0,33% Mn.

1. M. Larionov. *Mössbauer spectroscopy with high-speed resolution crystal phosphide (Fe,Ni)₃P of the Sikhote-Alin of meteorite.* (Dissertation on competition of scientific degree of PhD of Physical and Mathematical Sciences: 2012).
2. Frank - Kamenetsky V.A. *Guide to X-ray diffraction study of minerals* (L.: Nedra: 1975).
3. Semenenko V.P. Girich A.L., Shirinbekova S.N., Horovenko T.N., Kichan N.V. *Nanosystems, nanomaterials, nanotechnologies*.**10,** 1 (2012).