

Non-Destructive Investigation of Fragment of Leggings (4th Century BCE) Using Neutron Resonance Capture Analysis

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Neutron resonance capture analysis is a state of the art method for elemental identification. It is based on registration neutron resonances in radiative capture and measurement the yield of reaction products in these resonances. The method is in particular highly valuable in the determination of the composition of archaeological objects.

As part of this direction, joint work is being carried out with the Institute of Archeology of the Russian Academy of Sciences (RAS) for various samples. One of these samples is a fragment of leggings. This archeological object was found during excavations of the Scythian mound Gorki-I, carried out by senior researcher at the Institute of Archeology of RAS Savchenko E.I. in 2003. The burial mound was located in the Krasnyansky district of the Belgorod region, in the burial mound No. 13, dating from the mid-second half of the 4th century BCE. A pair of bronze leggings was found there, one of which was so poorly preserved that only one could be reconstructed [1].

The bronze leggings, which are leg armor that protects not only the shin, but also the knee, are extremely rare in the burials of the Scythian nobility; they are found only in the richest (royal) Scythian burial mounds. In view of such rarity fragility of the artifact, the determination of element and isotope composition by non-destructive Neutron Resonance Capture Analysis is particularly relevant.

REFERENCES

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