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# Preliminary result of investigation of the metal composition of coins from Phanagoria's treasure by method of neutron resonance capture analysis

The method of neutron resonance spectroscopy –Neutron Resonance Capture Analysis (NRCA) is developed in the Laboratory of Neutron Physics for the purpose of determination of the element composition of samples. Identification of elements and isotopes is carried out by measuring the energy of neutron resonances in the reaction of radiative capture, and their content in the sample is determined by measuring the gamma quanta yield in the observed resonances. The research is conducted on the beams of pulsed resonance neutron source IREN of FLNP. A cylindrical multisection detector with liquid scintillator is used as a detector of gamma quanta.
NRCA has a number of advantages: non destructiveness, practically absent induced activity, principle possibility of investigation of samples of any shape and size, sensitivity to isotope composition of the sample. This makes it an efficient tool for investigation of archaeological artifacts, cultural heritage objects.
Such investigations were carried out in collaboration with Institute of Archaeology Russian Academy of Sciences for the ancient coins from the Phanagoria's treasure. The main part of a treasure (more than two thirds) is formed by staters of Reskuporid V (3 century AD). These coins are of special interest for studying of economic climate and inflationary processes which are followed by degradation of coinage alloy of staters. Preliminary result of the investigation of the element and isotope composition of the coins will be presented in the work.

## Summary

Street Leningradskaya Building 10, Dubna, Russian Federation

**Primary authors:** Mr YERGASHOV, Almat (Joint Institute for Nuclear Research); Mr BAZHAZHINA, Nina (Frank Laboratory of Neutron Physics, Joint Institute for Nuclear Research); Mr SEDYSHEV, Pavel (Frank Laboratory of Neutron Physics Joint Institute for Nuclear Research)

**Co-authors:** Mrs SAPRYKINA, Irina (Institute of Archaeology Russian Academy of Sciences); Mr ABRAMZON, Mikhail (Nosov Magnitogorsk State Technical University); Mrs MAZHEN, Saltanat (State University "Dubna"); Mr ZEYNALOV, Shakir (Frank Laboratory of Neutron Physics, Joint Institute for Nuclear Research); Mr SHVETSOV, Valery (Frank Laboratory of Neutron Physics, Joint Institute for Nuclear Research); Mr MAREEV, Yuri (Frank Laboratory of Neutron Physics, Joint Institute for Nuclear Research)

**Presenter:** Mr YERGASHOV, Almat (Joint Institute for Nuclear Research)

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