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Determination of element composition of archaeological objects by neutron resonance capture analysis

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The method of Neutron Resonance Capture Analysis (NRCA) is currently being developed in the Frank Laboratory of Neutron Physics (FLNP) for the purpose of determination of the element composition of samples. The method is based on registration neutron resonances in radiative capture and measurement the yield of reaction products in these resonances. The method is non-destructive, the induced activity of the sample is practically absent. All this makes it promising for research of archaeological artifacts and objects of cultural heritage.

These measurements have been performed for a number of archaeological objects in collaboration with Institute of Archaeology RAS at the pulsed neutron source IREN of FLNP. One of the samples is a fibula from Podbolotyevsky burial ground (10th century AD) in the Vladimir Region. The element composition determined by analysis can be used for the identification a territory where the fibula was made. The relevant investigation about the medallion of ancient Russian time (XII - first half of XIII centuries) will also be presented.

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