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Observation of hidden archaeologic relics using neutron radiography

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Cultural heritage is ours from the past and should be passed on to future generations. They contain a unique and irreplaceable historical record for understanding the history. Interestingly, some heritages include hidden relics inside them. Many researchers have tried to analyze information about the hidden relics to complete a preserved historical puzzle without any damage to the relics, which may occur during observation. In this respect, non-destructive testing technology (NDT) is very important for the inspection of archaeological objects. Of the many available NDT, X-ray radiography has been widely used and should now be routine for research and conservation of most archaeological objects and other relics.

A complementary neutron radiography is much less used in this area. Until recently, the main reason for this was the very small availability of moderately easily accessible neutron sources and the lack of efficient modern neutron imaging equipment. However, Rant and Kardjilov [1] explored the advantages of neutron which can penetrate metals. Also, Schillinger [2] reported that neutron NDT (NNDT), i.e. tomographic scanning, enables to disclose hidden characteristics for relics.

Neutron radiography improves the knowledge and understanding about the past cultures. In specific, tomographic scanning is a powerful method for studying of archaeological objects. Therefore, the various characteristics of the object can be examined by neutron radiography.

References

[1] J.J. Rant, in: The Eighth International Conference of the Slovenian Society for Non-Destructive Testing, Portorož, Slovenia, 1–3 September 2005, pp. 181–188.

[2] B. Schillinger, et al., in: Proceedings of Fifth World Conference on Neutron Radiography, Berlin, Germany, 17–20 June, 1996.

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