UNIVERSITY OF BELGRADE
TECHNICAL FACULTY IN BOR

# BOOK OF ABSTRACTS

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# NON-DESTRUCTIVE TESTING OF INORGANIC MATERIALS AS DECISION TOOL IN CULTURAL HERITAGE

**Student: Marija Kovač**

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**Abstract**

Non-destructive testing (NDT) methods are one of the most used examination methods in modern materials analysis because of their capacity to investigate material properties without causing chemical alterations. This characteristic is highly advantageous not only in advanced materials analysis, but also in the context of cultural heritage preservation. These methods serve as very useful decision-making tools for conservators and contribute to multidisciplinary approach within the field. Preserving cultural heritage materials, such as glass, mortars, binders and bricks, is complex because of historical significance and potential fragility. Analyzing these materials can be challenging, primarily because traditional destructive testing methods are often unacceptable. These materials can be fragile and prone to damage from physical contact or invasive testing analysis, which makes these methods of analysis often inadequate in this field. Variations in composition, surface degradation, and multilayered structures are the difficulties in examination, and these difficulties can be avoided with NDT methods and adequate methodology of testing materials. Non-destructive testing methods such as FTIR, Raman spectroscopy, colorimetry, and XRF can offer valuable information for conservators. Also, they can offer *in-situ* analysis in case of portable devices, which is very useful in this field. For conservators, results of these methods can play crucial role in determining techniques of preservation, cleaning and protection for cultural heritage objects.

***Keywords:*** *Non-destructive testing, Inorganic materials, Cultural heritage, Spectroscopy*


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