

# **Current Status of Neutron Radiography Facility at HANARO and A Feasibility Study on the Cultural Heritage**

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Neutron radiography is one of the non-destructive tests and the characteristics of the neutron are different from those of X-ray or gamma-ray. Although X-rays can't provide enough information inside a thick material, Neutrons are a good probe for examining the interior of thick material. Therefore Neutron beams can be used in a variety of research fields. HANARO is a powerful research reactor with the thermal and cold neutron. There are two beam ports for neutron radiography, one is Neutron Radiography Facility and the other is Ex-core Neutron irradiated Facility. We have developed advanced neutron techniques and applied for industrial applications from general non-destructive tests to next-generation power sources using these two facilities. Recently, we are interested in studying cultural heritage using neutron. Non-invasive testing is essential for cultural heritages. X-ray technology has come to be widely used for studies on the majority of archaeological objects. However, neutrons are used far less frequently in this field because of accessibility issues. Recently, preliminary studies have been carried out to apply neutron beams at HANARO to cultural heritage. Various neutron techniques were applied to preliminary studies, for example, neutron tomography, diffraction, residual stress, and so on. In this presentation, I would like to present the results of applying neutron beams to preliminary studies of cultural heritage.