Acta IMEKO

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**Object**: research paper submission

02/03/2021

Dear Editor,

I wish to submit a new research paper entitled “*X-rays investigations for the characterization of two 17th century brass instruments from Nuremberg*” for consideration by Acta IMEKO.

In this paper, two brass natural horns from the end of the 17th century held in the Castello Sforzesco Museum in Milan and owning a great historical value, were considered. The results of a multidisciplinary approach mainly based on non-invasive analytical techniques including X-rays investigations (X-ray radiography, X-ray fluorescence and X-ray diffraction) allowed us to: i) pointing out the executive techniques for archaeometric purposes; ii) characterizing the morphological and the chemical features of materials; iii) identifying and mapping the damages of the structure and the alterations of the surface.

I consider this work an important task because relevant insights are provided for characterizing and studying the historical brasses; furthermore, the non-invasive approach potentiality was proved to be efficient for many figures for instance the scientists, the conservators, and the musicologists.

The collected results allowed us to gain deeper insight into the traditional making processes and craftmanship of a key age for the brass production with a focus on the employed alloy and the underwent alterations during the ages. This work makes an essential contribution to the conservation of a Cultural Heritage portion, with actual practical implication.

With the submission of this manuscript, I would like to undertake that the above-mentioned manuscript has been partially presented at the IMEKO TC-4 International Conference on Metrology for Archaeology and Cultural Heritage, Trento, Italy, 2020, and it is included in IMEKO Proceedings 2020. In the submitted research the 3D analysis data were replaced by a new portion in which an unpublished XRF data set is discussed considering also some XRD and FTIR spectroscopy results: it allowed us to disclose new understandings on the issue.

Thank you for your consideration of this manuscript.

Sincerely,

Marco Malagodi