The study of ancient archaeological finds through X-ray tomography: the case of the "*Tintinnabulum*" from the Museum of Anthropology and Ethnography of Torino

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Abstract. X-ray Computed Tomography (CT) is a widely used diagnostic technique in the field of Cultural Heritage and beyond, above all thanks to its non-invasiveness. The high penetrating power of X-rays allows us to investigate the internal structure of the analysed objects, thus obtaining valuable information related to the history of artistic and archaeological finds. In particular, CT provides useful data on the entire volume of the objects, to finally obtain a 3D model of the studied artworks. In this field, the goal of the "neu_ART" project, a collaboration among different institutions in Torino funded by Regione Piemonte in 2010, was to develop radio-tomographic set-ups for X-ray imaging analysis dedicated to Cultural Heritage studies. In this paper, a computed tomography investigation on an ancient ceramic rattle from the Museum of Anthropology and Ethnography of the University of Torino is presented. This is the first analysis carried out at the Physics Department of University of Torino, using the imaging set-up based on a TDI linear detector moved by a high precision mechanical system. Thanks to this study, much information on the technique of execution and the state of conservation was obtained.

1. Introduction

Diagnostic imaging techniques based on the use of X-rays allow, in an increasingly efficient way, a non-invasive analysis of the internal structures of the objects and, more generally, the study of the