



## **Archaeometry study of two of the most important ancient white marbles for Cultural Heritage exploited in Piemonte region (NW Italy)**

Francesca Gambino (1), Alessandro Borghi (1), Anna d'Atri (1), Luca Martire (1), Lorenzo Appolonia (2,3)

(1) Università degli Studi di Torino, Department of Geological Sciences, Turin, Italy, (2) Centro Conservazione e Restauro "La Venaria Reale", La Venaria Reale (TO), Italy, (3) Soprintendenza per i beni e le attività culturali della Regione Autonoma Valle d'Aosta, Aosta, Italy

The study of ancient marbles plays an important role in the interpretation of an archaeological site and gives interesting information about building materials used in ancient times and their trade routes.

The present work focuses on Chianocco marble and Brossasco marble that represent two of the most important ancient white marbles for Cultural Heritage exploited in Piemonte region (NW Italy). Therefore, a multi-analytical study based on petrographic (optical and scanning electron microscopy), electron microprobe and stable isotope analyses was carried out on these marbles in order to perform an archaeometric study.

Chianocco marble was used in Turin during the era of the famous architect Juvarra (1678 - 1736) for baroque historical sites, for example for the façade of Palazzo Madama, the plinth of the façade of the Cathedral and the columns (now plastered) of the portico of Piazza San Carlo. It is a dolomitic marble and it is peculiar for its vuggy fabric due to tectonic brecciation and subsequent selective dissolution during subaerial exposure. It belongs to the Mesozoic cover of the Dora Maira Massif (Penninic Unit).

Brossasco marble can be found in Turin in the Church of S. Filippo Neri (1650-1891) in which the marble is employed for the columns and beam of the aedicule that support the tympanum. It is also used in the corinthian capitals of the aedicula of the Basilica di Superga and for the statues on the top of the Palazzo Madama. It is a coarse-grained isotropic white calcitic marble and it belongs to the Pre-Triassic (Palaeozoic) crystalline basement of a small geological unit (Brossasco-Isasca Unit) located in the southern Dora Maira Massif (Western Alps), which suffered HP-HT metamorphism during Alpine orogeny.

Lastly, this kind of research is also useful to highlight the importance of the use of local stones as building materials and to investigate stone materials for the restoration and the maintenance of the historical buildings.