**A gemmological study of the reliquary crown OF Namur**

Y. Bruni and F. Hatert, Laboratory of Mineralogy B18, University of Liège, B-4000 Liège, Belgium ([Yannick.bruni@uliege.be](mailto:Yannick.bruni@uliege.be)). P. George and J. Maquet, Liège Cathedral Treasure, Rue Bonne Fortune 6B, B-4000 Liège, Belgium. H. Cambier, Diocesan Museum, Place St-Aubain, B-5000 Namur, Belgium. D. Strivay, European Centre of Archaeometry, University of Liège, B-4000 Liège, Belgium.

Keywords: gemological study, reliquary crown, Namur, Belgium

The “Sainte-Épines” reliquary crown is hosted in the diocesan museum of Namur, inside the Saint-Aubin cathedral, since the beginning 20th century. This beautiful piece of goldsmithery, produced during the 13thcentury, contained two thorns from the Holy crown in small capsules until 1889. The crown, classified among the exceptional historic religious items of Wallonia, is made of eight articulated gold plates measuring approximately 7 cm height, topped by round lobes, and connected to each other by hinges blocked with a pin decorated by a pearl. The plates are decorated by filigrees, metal flowers, as well as by approximately 400 white pearls and coloured stones (green, reddish pink, turquoise, red, blue) showing simple cutting (mainly cabochon) with various sizes and shapes. All samples occur in gold settings, either without hooks or rarely with four hooks. Inclusions, distinct colour zoning, traces of removed inclusions, as well as growth and star structures are also sometimes observed.

The crown was analysed by handheld Raman spectrometry and X-ray fluorescence spectrometry (pXRF), to determine the nature and sources of gems and pearls, as well as the composition of filigrees. Analyses have identified emeralds from Pakistan, reddish pink spinels from Tajikistan, red almandine garnets from India, turquoise from Iran, blue sapphires from Sri Lanka or Myanmar, and European pearls. The filigrees contain approximately 86 wt.% Au, 7 wt.% Ag, and 7 wt.% Cu, thus confirming a gold-rich composition. The gemstones, contemporary with the crown, probably arrived in Europe by the silk trade road. The archaeometric investigation of religious goldsmith artwork with non-destructive techniques is a necessary step to better understand the historical and geographic contexts in which these objects were produced (1-2).

1. Bruni, Y., Hatert, F., George, P. & Strivay, D. (2020). *Journal of Archaeological Science Reports*, 32, 102451.
2. Bruni, Y., Hatert, F., George, P. & Strivay, D. (2020). *Archaeometry*, 62, 297-313.