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STUDY AND RESTORATION OF THE REMAINS OF AN OPUS SECTILE FLOORING AT CASTEL DEL MONTE (ANDRIA, ITALY)

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The recent extra repairs of the modern *cocciopesto* floor inside Castel del Monte (Andria Province, Puglia, Italy), building ordered by Federico II of Swabia in the second quarter of the thirteenth century, have been the opportunity of studying and restoring the remains of the original *opus sectile* flooring in the room VIII on the ground floor. Although Castel del Monte boasts a very rich literature and stands for one of the monuments most studied in the architecture history, it is wanting an exhaustive treatment on the floorings, often known only for some aspects, such as connected to the symbolism of the represented decorative motifs.
The used materials and their production and laying testify the high execution capacity of the workshop that realized the *opus sectile* at Castel del Monte. Skilled *magistri tarsiatores* were involved, who knew the art and technique of the *Cosmati* style and faced up to a demanding job as was that for one of the more important Frederick residence [1,2]. At Castel del Monte a simple, filling motif is applied to the SE triangle of the VIII room, while in the central square the decorations are more complex starting from the frame itself. The circles conserved inside the square are for the most part rebuilt; however, they may call to mind one of the motifs (*quinconce* or *guilloche*) more used by the Cosmati. One of the recurring theme in the Cosmati decorations is that of the six-point star, so much frequent that it takes the name of "Cosmati star". Six-point stars are well represented in the two largest surviving part of the Frederick flooring (Fig.1).

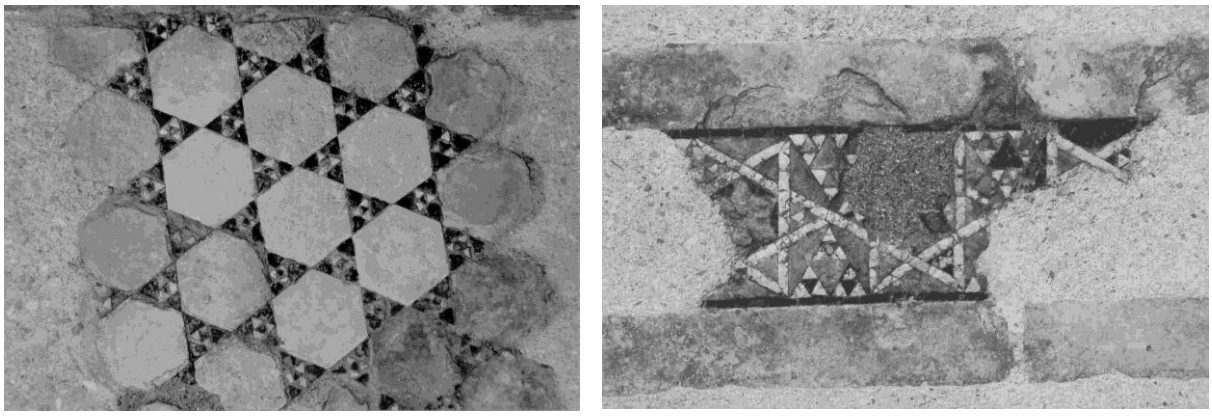

Figure 1 – Remains of the *opus sectile* with the six-point stars motif (scale about 1:10).

The restoration work has allowed to bring to light the stratigraphy of the room and to recover, by sieving the excavation material, numerous scattered elements of the *opus* sectile, then studied in laboratory.
The *opus sectile* decoration was executed using stone and glazed ceramic *tesserae*. The stone *tesserae* are white and black, while residues of glaze of only green colour have been found on

the ceramic *tesserae*. The ceramic fragments have shown a body obtained with a calcareous clay, to which a fine quartziferous sand was likely added, fired at a relatively high level; the green glaze has a silicatic-leaded composition, with potash as main fluxing element, besides lead, and colour due to copper. The white stone *tesserae* were made using a limestone classified as *pelmicrite*; this kind of stone is present in the Murge limestone formation [3], in localities not far from Castel del Monte. The black stone *tesserae* were obtained from a limestone with little amount of carbonaceous matter that gives an intense black colour to the stone; this stone has the characteristics of the *Ancient Black*, much utilised in Roman epoch and coming from quarries in Greece and Tunisia [3]. In a part of the layer directly below the *opus sectile* decoration, a packed mix of *pozzolana* and *calcarenite* with little lime has been found; while another part is divided into two levels of a lime-sand mortar, with the upper distinct from the lower only by the presence of *cocciopesto*. Other two layers of the structure pertaining to the *opus sectile* are made: the upper of a lime-sand mortar with fragment of calcareous stones and the lower of loose earth, with calcareous fragments as well. On the, whole the flooring structure has a thickness of 15 cm. The calcareous stones that constitute the coarse fragments are the same types of *biocalcarenite* and *biosparire* widely present in the Murge limestone formation, utilised for the masonry blocks and the carved architectural elements of the Castle respectively; the working scraps of these stones were recycled in the mortars of the bearing layers of the floorings.
Restorations of the original flooring remains were carried out in the past, starting from the end of the nineteenth century [4-6]. Monitoring the condition of the flooring, some of the past restoration intervention have been observed. Mortars with various compositions and surface finishing were used in filling lacunas inside the *opus sectile* remains. On the whole surface of the fragments, and on what survives of the early laying, a dark stain that modified negatively the chromatic relation between the elements of the flooring has been found. This was due to a protection intervention of the past using an organic polymer, now deeply altered.
The carried out restoring intervention had as main objective the reinstatement of the parameters that influence the visual perception of the mosaic, through the selective elimination of incrustations and stains that darken it, reviving the original chromatic and texture relation between the *tesserae*. New filling of the lacunas have been carried out, using a new mortar like that utilized in the rest of the room, and a final protection has been realized by microcrystalline wax.

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