



## **Innovative geophysical measurements on the cultural heritage patrimony in Lecce, Italy**

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The bilateral project “Non-invasive investigations to enhance the knowledge and the enjoyment of cultural heritage”, conducted together by the Institute for Archaeological and Monumental Heritage IBAM-CNR and the Department of Geoscience of the University of Malta, has allowed to schedule performed integrated geophysical prospections [1] both in Italy and in Malta, part of which have been already performed. In this contribution, we will describe a work regarding the Roman amphitheatre of Lecce, Italy, where ground penetrating radar and passive seismic measurements were performed.

The amphitheatre of Lecce is a particular monument because it is only partially visible. In particular, its memory was lost and its traces appeared causally when digging for a building work at the beginning of last century. It was not possible to excavate it entirely because of the presence of subsequent structures, by now historical in their turn, of renaissance-baroque style. In particular, the “ambulacra”, i.e. the corridors under the steps that originally surrounded the entire arena, are walled at a certain point and it is not known if they continue or not beyond the current limit up to form a closed ring, or if they collapsed. In particular, part of these ambulacra prolong under the current St Oronzio square, and we have performed geophysical investigation in the square and in particular in an area where the buried ambulacra, if still present should pass. The investigations reveals that it is probable that, at least partially, the ambulacra continue, but it is not possible to establish if they join from both sides and still form an elliptical ring under the square, also because the vertex of the ellipsis should be placed under a church where we could not perform prospections at the moment.

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### References

Innovative Instrumentation and Data Processing Methods in Near Surface Geophysics, edited by R. Persico, S. Piro and N. Linford, Elsevier, ISBN 978-0-12-812429-1, 2018.