



## **Integrated Techniques for Analysis and Monitoring of Historical Monuments: the case of S.Giovanni al Sepolcro in Brindisi (Southern Italy).**

A. Calia (1), M.T. Giannotta (1), N. Masini (2), G. Quarta (1), and R. Persico (1)

(1) CNR-IBAM (Istituto per i Beni Archeologici e Monumentali), Lecce, Italy (a.calia, mt.giannotta, g.quarta, r.persico@ibam.cnr.it), (2) CNR-IBAM (Istituto per i Beni Archeologici e Monumentali), Tito Scalo (PZ), Italy (n.masini@ibam.cnr.it)

Non destructive testing has been gaining a large interest in the field of the diagnostics applied to the cultural heritage. The exceptional and brittle nature of the investigated structures, in fact, discourages invasive investigation techniques even more than in other applications. In particular, non-destructive testing can be exploited for the detection of fractures or for the investigation of pillars and columns within churches of particular historical and/or architectural relevance. This has been recently done in the cathedral of Matera [1], and previously in the crypt of the Romanesque cathedral of Otranto [2]. In both cases, integrated prospecting has been performed, where GPR data have been considered together with acoustic sounding or resistive measurements and even microclimatic investigation. Integrated prospecting is a good help to perform not only the diagnosis of the structure but also its restoring and continuative preservation. In this contribution, we propose a case study where integrated methodologies have been adopted for the analysis of the conservation state of the architectural elements which constitute the church of S.Giovanni al Sepolcro, in Brindisi (Southern Italy). This church is a precious artifact of medieval age, which recently underwent restoration works. IBAM-CNR has been put in charge of the task to analyse the constitutive materials, the superficial finishing (paintings, patinas, plasters etc.) and the causes and the products of the decay. The information retrieved from the analysis of the materials have been fruitfully integrated with non-destructive testing of the structure. Some results will be shown at the conference.

### References

- [1] N. Masini, R. Persico, A. Guida, A. Pagliuca, "A Multifrequency and Multisensor Approach for the Study and the Restoration of Monuments: the Case of the Cathedral of Matera.", *Advances in Geoscience*, vol. 18, pp. 1-6, 2008.
- [2] G. Leucci, R. Persico, F. Soldovieri, "Detection of Fracture From GPR data: the case history of the Cathedral of Otranto", *Journal of Geophysics and Engineering*, vol. 4, pp. 452-461, 2007.