



**5<sup>th</sup> International Congress on**

*“Science and Technology for the  
Safeguard of Cultural Heritage in the  
Mediterranean Basin”*



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# FOREWORD

This Congress which follows the December 2009 Congress of Cairo represents a significant step forward for the number of scientific activities, for the countries Participants belong to and for the number of presentations. These data show how large is the interest of scientists from all over the world for the preservation of our Cultural Heritage.

There are 750 registered scientists who belong to 52 countries: Albania, Algeria, Belgium, Bulgaria, China, Colombia, Croatia, Cyprus, Czech Republic, Denmark, Egypt, Finland, France, Georgia, Germany, Greece, Hungary, India, Iran, Iraq, Israel, Italy, Jordan, Luxembourg, Macedonia, Malta, Mongolia, Morocco, Nepal, Netherlands, Norway, Palestine, Poland, Portugal, Romania, Saudi Arabia, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Syria, Tanzania, Tunisia, Turkey, Uganda, United Kingdom, United Arab Emirates, USA, Virgin Islands.

The total number of Abstracts is 400 presented by 1.030 Authors and Co-authors: 256 oral and 44 poster presentations.

Most participants belong to universities (60%), 24% belong to public scientific institutions and 16% to scientific enterprises.

This Congress will be also the right moment to define the final text of the EACH Project to be given to the European Commissioner for Research and Innovation, Mrs. Máire Geoghegan-Quinn in order to take it into account for the "Discussion Document" the Commissioner is preparing for the next 8<sup>th</sup> Framework Programme of the European Commission to be completed within the end of 2011.

Welcome to Istanbul, Istanbul'a hoç geldiniz,

prof. Angelo Guarino

prof. Ahmet Güleç

## A MULTIDISCIPLINARY NDT WORK RELATED TO THE RESTORATION PROJECT OF THE CRYPT OF THE HOLY SPIRIT IN MONOPOLI (SOUTHERN ITALY)

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In the framework of the restoration interventions, nowadays it is scientifically mandatory a preliminary diagnostic phase. In fact, this is needed in order to plan adequately an intervention for conservation, especially in the case of a remarkable monument, as the Crypt of the Holy Spirit in Monopoli is. The diagnostic work allows to estimate the conservation state of the monument, as well as to identify the main causes of its degradation. Moreover, within its wider meaning, the diagnostic of the monument can also allow to get an insight about the knowledge of the monument itself, e.g. in relationship to the use of the materials, the building techniques and the possible modifications occurred during the centuries. So, nowadays, the diagnostic for Cultural Heritage essentially aims to give a contribution to the global knowledge of the monuments, essential for restoration and conservation purposes, but also important for communication aspects.

The diagnostic aspects considered in the crypt of the Holy Spirit involved multidisciplinary competences, ranging from engineering to architecture, from geophysics to chemistry to information technologies (IT). Each of these competencies provided useful tiles for the reconstruction of the mosaic of the knowledge of the monument.



Fig. 1 The inner of the crypt.

From the conservation point of view, the crypt presents problems common to many hypogeum monuments, as the presence of humidity in the walls that has favoured the proliferation of several biological species in some areas, thus compromising the state of conservation of some wall paintings. In a first phase, the major concerns have been with regards the structural stability of the crypt, with fractures evident in some parts of the walls, of the vault and in some columns and pillars of the main nave of the crypt.

A particular feature of this crypt, consists in the fact that some of the wall paintings are covered with white large and thick lime washes that have probably preserved them from degradation.

From a few parts of the wall paintings discovered under the removed lime wash, it seems that they are of good technical stylistic quality, and this makes them particularly interesting in the context of the rupestrian pictures in the all the Apulian-Lucan area (southern Italy).

After affording some the structural emergencies, the study of a suitable conservation strategy for these paintings will be the object of a successive study phase on the monument.

The structural issues have been studied thanks to non-destructive methodologies implemented with the instruments supplied by the laboratories of the Institute for Archaeological and Monumental Heritage IBAM-CNR.

In particular, the investigation has enclosed 3D laser scanner survey, infrared thermography, measurements of temperature and humidity of the air and of the wall surfaces, ground penetrating radar (GPR), ultrasonic and seismic tests, on the floor, on the columns and pillars, on part of the walls and above the ceiling of the crypt.

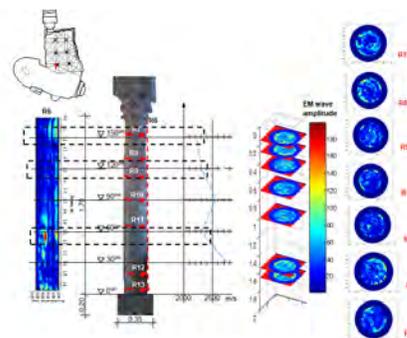


Fig. 2 Integrated GPR and ultrasonic investigations.