Richiesta di attivazione di Assegno di Ricerca

TITLE
Mitigating the impacts of natural hazards on cultural heritage sites, structures and artefacts.

BACKGROUND AND PROJECT OBJECTIVES
Italian cultural heritage, one of the most relevant worldwide with 51 listed sites among the UNESCO World Cultural Heritage, is still being lost at an alarming rate, due to either natural or human-induced disasters.

The MICHe project, within which this research project is related, envisages bridging the gaps that are preventing from an active protection of our cultural heritage.

Obstacles to efficient conservation policies are:
- An alarming disconnection between conservators and structural designers approach.
- The need for more reliable methods to forecast risks induced by natural hazards.
- The increased complexity of fulfilments that intervention solutions have to meet, such as effectiveness, compatibility, durability, reversibility/retreatability and sustainability for environment and humans.

MICHe proposal targets the development of new and efficient strategies to protect cultural heritage from different risks. In particular, MICHe proposes new analyses methods, strategies, intervention solutions and management tools to increase the resilience of cultural heritage assets against multiple hazards, like earthquakes, floods, landslides, and fires. An interdisciplinary approach is adopted with the final aim of proposing more efficient multi-risk management policies.

The project focuses on specific case studies, selected to encompass the most typical hazards of the Italian territory. Modena Cathedral, Florence city centre and S. Miniato hill (FI), urban city walls of Volterra (PI) and the Norman Tower in Craco (MT) will be used to test and validate the proposed strategies and methodologies.

The project is grounded in a bottom-up approach, which starts from the stakeholders requirements, and aims at solving the real issues and challenges affecting the conservation of cultural heritage. On the one hand, hazard estimation procedure still require a research effort and thus, significant scientific advancements that can be achieved through a multi-disciplinary research effort. On the other hand, the applicability of already available intervention techniques for built heritage and the effectiveness of hazard prediction chains require a sharing of experiences and fruitful cooperation among professionals involved in the process to make academic research fully effective.
**ACTIVITY PLAN**

The work suggests two main steps in order to perform the planned activities.

1. The first step is the estimation of flood hazard and flood exposure for the case study of Modena cathedral. DEM-based statistical approaches will be applied. This will serve as the basis for the multi-risk procedure required by the MICHe research project.

2. The second step consists of a multi-risk analysis, including earthquake and fire as additional hazards.

The activity plan is expected to include also the preparation of technical reports for the MICHe project.