

## Petrology Applied to Conservation of Cultural Heritage

### KEYWORDS

- Materials characterization
- Consolidation and protection
- Materials provenance
- Desalination
- Moisture deterioration

### POTENTIAL END USERS

Companies focused on management, conservation, and restoration of cultural heritage (objects and/or built heritage), Museums, construction companies (rehabilitation), companies that distribute restoration products, as well those focused on instrumental techniques.

### TECHNIQUES

- Microscopy
- ERT (Geotom)
- X Ray fluorescence
- IR spectroscopy
- Raman spectroscopy
- Optical roughnessmetry
- IR thermography
- DRMS (drilling)
- UPV (ultrasound)
- Hg intrusion porosimetry



## Traditional and innovative technologies for the diagnosis, conservation, and restoration of natural and artificial stone materials

### Need or problem that solves

Currently, the conservation of cultural heritage requires a multidisciplinary approach around aspects such as:

- Geomaterial diagnosis and characterization studies
- Use of portable and non-destructive techniques for on-site analysis
- Validation and quality control of products and materials used in interventions
- Monitoring of environmental conditions

At the same time, the variety of deterioration agents that affect heritage requires proposing innovative solutions for the correct conservation and restoration of cultural heritage.

### Innovative aspects

- Protocols based on innovative technologies for the control of interventions related to cleaning methods, protection and conservation treatments applied on built heritage.
- Development of desalination and consolidation techniques based on electrokinetics.
- Use of high-resolution electrical resistance tomography (ERT) technique for 2D mapping moisture content in built structures
- Environmental control with wireless sensors.



### Equipment

The [Petrophysics' Laboratory of IGEO](#) has an extensive list of techniques, particularly remarkable for the wide variety of portable and non-destructive techniques that represent a real mobile laboratory for on-site studies specialized in:

- Petrophysical analysis techniques (optical roughnessmetry, microdurometry, spectrophotometry, Hg intrusion porosimetry, among others)
- Chemical analysis techniques (XRF, Raman and FTIR).

### Contact

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