

## **PETRA: Petra Painting Conservation Project**

PETRA application provides documentation, condition assessment, and characterization of Nabataean wall paintings and painted marble sculptures from Petra, with a focus on its gilded wall paintings. Characterisation methods include 2D and 3D Micro-XRF, Micro-XANES, Handheld XRF, Handheld FTIR in addition to various complementary lab-based characterisation techniques. Moreover, an experimental conservation material for the gold layer will be developed upon the output results of both conservation and archaeometric research on the studied objects.

### **Aims:**

#### **1. Survey of the painted material in Petra**

Collecting historical and recent research material about painted walls and sculpture in Petra (photos, descriptive documents, analysis data, etc...). This is followed by in-situ survey of the remaining intact painted walls as well as painted fragments and painted marble sculpture in Petra.

#### **2. Documentation and analysis of the painted material in Petra**

Detailed documentation (photography and condition assessment) and analysis of the surveyed painted objects is being done. In-situ and ex-situ analysis work is taking place in Petra and Berlin.

### **Methods:**

To focus on what we are contributing with, so far, to VI-SEEM project, analysis raw data and results of the Handheld Fourier Transform Infrared Spectrometry (HH-FTIR) will be presented. These present in-situ measurements taking place in Petra directly on the painted historical object (wall or sculpture) and totally non-invasively and non-destructively.

### **Expected Results:**

The vibrational spectroscopic method of infrared analysis is expected to help us identify the organic and molecular components of the painting materials present in Petra's 2000-year old objects. Moreover, alteration and degradation material present in these painted objects will be identified and considered in the conservation treatment we are developing. These materials have not been previously identified nor marked remarkable despite the invaluable historical significance and uniqueness of Petra's wall paintings, particularly the gilded, as well as the painted marble sculpture.

The use of a one digital portal to store the data, view, connect and compare them, and may be visualise them at a later stage will certainly strengthen our research, time-wise and money-wise.