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## **Characterisation of pigments on an Egyptian Sarcophagus Fragment using NIR Spectroscopy**

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### **ABSTRACT**

Non-destructive methods of analysis for the characterisation of historical and archaeological artefacts offer an attractive means for historians and conservationists alike to chemically and physically assess the composition and rare and fragile specimens. The priceless nature of some artefacts means that even contact based technologies may not even be appropriate for in-situ analysis.

This is where vibrational spectroscopy offers researchers a distinct advantage over many other methods of analysis. In particular, near infrared (NIR) spectroscopy is ideally suited to these types of specimens. NIR is a completely non-destructive method and due to the low energy levels and high signal-to-noise ratio of the resulting spectra can be used to assess these types of samples without making physical contact with the sample.

This presentation will discuss preliminary results from the application of NIR spectroscopy to an Egyptian dynastic sarcophagus fragment attributed to the Ptolemaic Graeco Roman period in order to identify the pigments on the fragment. Comparisons are made between the results obtained from a research grade FT-NIR spectrometer and a handheld Linear Variable Filter (LVF) system. The use of ruggedised hand held systems further increases the usefulness of NIR spectroscopy and fulfils the needs of conservationists for in-situ and field applications.

### **BIOGRAPHY**

Elizabeth Carter's areas of interest are very varied and include: natural glasses (obsidian, tektites, fulgurites), the characterisation of healthy and diseased biological cells and tissues and analysis of archeological materials (ceramics, textiles, pigments, manuscripts).