

## **1. Research activity (max 1.000 words)**

My study focuses on a set of iron and bronze weapons, dating back from the 8th century BC to the 4th century BC. These archaeological artefacts were unearthed at Motya, an ancient Phoenician colony located in the Marsala lagoon of Sicily. They belong to the collection of Whitaker. No scientific and archaeometric studies have been carried out on such materials.

The aim of the project is to increase the knowledge about technological background of the ancient Phoenicians involved in the production of metal objects, and to define the nature of the corrosion products, which affect these artefacts, as well as the composition of the alloy and to explore the provenance of raw material.

I will use non-invasive and nano-invasive techniques, as Micro-Raman spectroscopy, XRD, FIB-FESEM-EDX and voltammetry of microparticles (VIMP), in order to identify the mineralogical and chemical composition of corrosion products and to analyse the external surface of the metal artefacts.

Destructive techniques will be performed on selected samples, to obtain information about an uncorroded nucleus of the objects and for quantitative analysis.

In details, I will use EPMA for chemical analysis of the major and minor elements, LA-ICP-MS to determine the concentration of trace elements and SIMS to analyze the isotopic compositions of Pb and Cu in the bronze artefact for provenance purposes.

Collaboration with other universities both in Italy and abroad is planned during the three years.

## **2. Research products**

- a) Publications (ISI journals)
- b) Publications (NON ISI journals)
- c) Manuscripts (submitted, in press)
- d) Abstracts

**N.B. I dottorandi del primo anno al punto 1 possono inserire il riassunto del progetto di ricerca (max 1.000 parole)**