

**PhD thesis position at the IRAMAT-CRP2A – University Bordeaux-Montaigne*****Minting techniques of Graeco-Roman copper alloy coinages:  
from microstructure to experimental archaeology*****Deadline June 6<sup>th</sup> 2020****Research context:**

Coinage is probably the first industrial object produced in Antiquity. Coinage appears at the 7<sup>th</sup> c. BC in the West of Modern Turkey. Soon, it will spread to the whole Mediterranean Sea and will develop in various metallic forms (gold, silver and bronze). If coins are always some sort of lumps of raw metal stamped with the emblem of the King, the Emperor or the City, they bear different forms in both their shapes and their contents. Regional particularisms and local *savoir-faire* played on the development of this tool that a vast majority of populations adopted. However, the aspects of their production are poorly known. The secrets of production were carefully kept, forgers duly punished, leading to a scarcity of the archaeological and textual evidence. It remains the object itself, found in large quantities (dozens of millions for the Greek and Roman periods), to rebuild the *chaîne opératoire* of its production.

**Description of Doctoral Research**

The research conducted in the framework of this doctoral contract is interdisciplinary. The successful applicant will have to build a bibliographical synthesis – as exhaustive as possible – from different disciplines. These ones are linked to the research in numismatics (limited to the study of production processes), the studies of microstructures of copper alloy ancient artefacts and experimental archaeological research on melting and production of these objects.

Concretely, the research conducted during this PhD should be focused on these two aspects.

Understand the metallic microstructures of ancient copper alloy coins. By studying a sample of several dozens of ancient copper alloy coins that will be cut and analyzed, it should be possible to create a cartography of the evolution of the coin production in Antiquity. Each operation made by ancient monetary workers left some traces in the life of the coin. These operations should be traced in all these aspects to understand the process of coin creation, from the blank production to the striking process. These answers will come from a series of studies: microstructure, elementary composition, crystallography, microhardness, etc...

Using experimental archaeology to find the different operations of the ancient monetary worker. Several sessions organized on the « Plateforme des arts du feu » in Melle (France) will aim at transcribing at full scale and in conditions reflecting the ones of the Antiquity the different operations once processed by these monetary workers. It will then be possible to compare the samples from laboratory, those coming from the archaeological sessions and the ancient samples.

**Work environment**

The successful applicant will join the team of the IRAMAT-CRP2A, a joined unit of the CNRS and the University Bordeaux-Montaigne. The PhD will be funded by the Nouvelle-Aquitaine region and the University of Bordeaux-Montaigne in the framework of the project “Striking coins. Metallurgy, production and quantification of the Ancient coinage” directed by Thomas Faucher. This project aim at the understanding and the processing of *savoir-faire* of the monetary workers of the Antiquity, to precise its developments around the Mediterranean Sea, for Greek and Roman periods, from the invention of coinage to the end of the Antiquity. It will also offer tools for the quantification of the Ancient coin production. The successful applicant will lead his/her research in the framework of this project, under the direction of Thomas Faucher and under the administrative supervision of Rémy Chapoulie (IRAMAT-CRP2A).

The applicant should possess a Master degree in either Chemistry, Physics, Material Science, Archaeological Science or Archaeology. Minimal knowledge in Archaeology is required for Chemists and Physicians while minimum knowledge of Physics and Chemistry is required from archaeologists. Smattering in Numismatics is optional.

Application to send to: [thomas.faucher@u-bordeaux-montaigne.fr](mailto:thomas.faucher@u-bordeaux-montaigne.fr)

To apply, send the following documents to the email address above before June 6<sup>th</sup> 2020:

- Detailed CV
- Cover letter
- Recommendation letter