

Analytical, Environmental and Geo-Chemistry

has the honor to invite you to the public defense of the PhD thesis of

Alicia VAN HAM - MEERT

to obtain the degree of Doctor of Sciences

Joint PhD with KU Leuven

Title of the PhD thesis:

Development of non-destructive analysis protocols for the chemical and isotopic analysis of archaeological materials

Promotors:

Prof. dr. Patrick Degryse (KUL)
Prof. dr. Phillipe Claeys

The defence will take place on

Monday May 6th 2019 at 17:30h

at the KU Leuven in in Auditorium Oude Molen, Kasteelpark Arenberg 50, 3001 Heverlee, and will be followed by a reception.

Members of the jury:

Prof. dr. Olivier Namur (chairperson)
Dr. ir. Christophe Snoeck (secretary)
Prof. dr. Philippe Muechez (KUL)
Dr. ir. Frederik Rademakers (KUL)
Prof. dr. Frank Vanhaecke (UGent)
Dr. Bruno Overlaet (KMG)

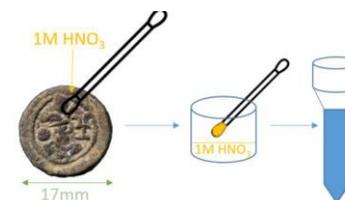
Curriculum vitae

Alicia Van Ham-Meert was born in 1991 in Ixelles, Brussels. She has always had a passion for knowledge and during high school especially history and chemistry. At the end of high school she made the "sensible" choice and started an engineering degree with the firm intention of choosing chemistry as specialty. After graduating as a chemical engineer at the VUB and the ULB, she went on to study Archaeological Science at the University of Oxford. Today she's come full circle combining (geo)chemistry and archaeology during her PhD.

Abstract of the PhD research

My research focused on the development of non-destructive analysis techniques for the elemental and isotopic analysis of glass and metal. No-destructive or non-invasive analysis methods are highly desirable when studying precious or rare archaeological objects. Sr and Pb isotopic analysis of glass objects through LA-MC-ICP-MS was developed. The methods were evaluated by comparing them with wet chemical methods (dissolution, column chemistry and subsequent MC-ICP-MS). Sr isotopic analysis is very useful in determining the Ca source for glassmaking.

For lead objects I developed a sampling method using a slightly acidified cotton swab, which proved effective.



A large portion of the research was also dedicated to elemental analysis. For this purpose mainly μ XRF and LA-ICP-MS were assessed and used. The results from these non-destructive/minimally invasive analysis methods were compared to ICP-OES data.

Those methods have been applied to three case studies, a glass assemblage from first century CE Dibba, UAE, lead coins from the Sasanian empire (third to eighth century CE, Iran and Iraq) and medieval stained glass windows from Stavelot (Belgium) and Baume-Les-Messieurs (France).

