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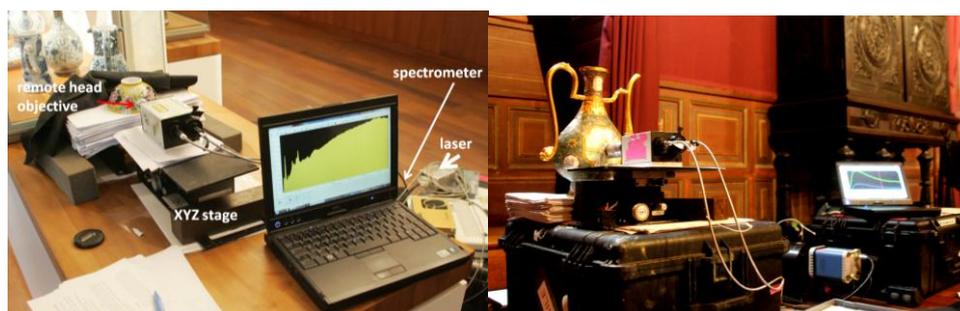
# 20 years of on-site Raman analysis of works of art: successes, difficulties and prospects

The study, in particular of the state of conservation, and the authentication of works of art are issues in full development and Raman microspectroscopy in conjunction with X-ray fluorescence are the reference techniques due to their perfectly non-invasive character, and the availability of mobile instruments. Although mobile instruments have been available for more than 20 years, their use has only recently exploded with the tightening of formalities allowing the movement of valuable objects and changes in practices. Our team having been the first to develop the Raman analysis of works of art, whether in the laboratory with the development of the MOLE in 1975 at LASIR [1,2] and on site from the 2000s [3, 4], we will focus the presentation on fire arts objects, most of which are enameled (metal, glass or ceramic). These sophisticated objects were technological achievements at their time of production, made for the elite, traded very early on at long distance, and their value which can reach several millions of € imposes on-site and non-invasive procedures. Their Raman analysis requires the use of high-performance instruments such as the HE532 and the Axial due to the simultaneous presence of vitreous phases generating a signature of broad bands and crystalline phases giving narrow peaks but mainly at low wavenumbers. With the development of particular procedures (use of sophisticated optics, micrometric stages, subtraction of the continuous background, analysis of proton corrosion, multivariate analysis) and an understanding/modeling of the spectra, the parameters of processing (temperature) are deduced [5 -8] and restorations/fakes/copies are identified.

## References

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## Figures



**Figure 1:** On-site Raman analysis using HE532 mobile set-up.