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On-site Raman study of enamelled artefacts:

Tracing the technology exchanges

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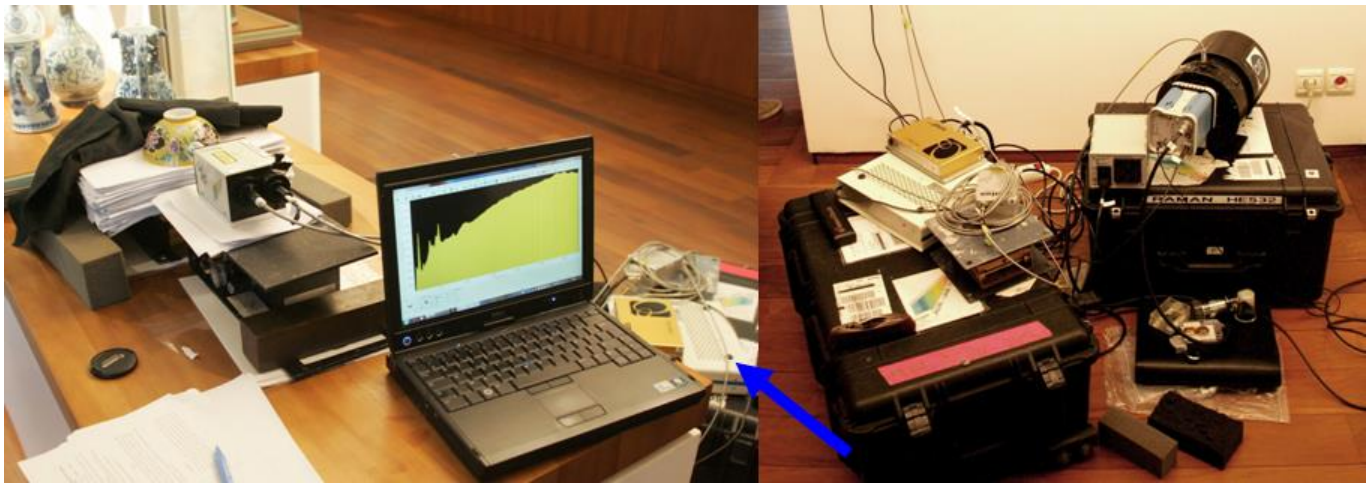
The technology of enamelling is among the most sophisticated one developed to décor metal, glass and ceramic artefacts [1]. Glass coatings are used as décor for millennia but also for technical reasons, namely the tightening of porous bodies and hardening of their surfaces. The coating must be compressed and thus glaze-body thermal expansion mismatches, wetting properties and softening temperatures should be optimised. The glaze's thinness requires specific colouration techniques (pigments, metal nanoparticles). Consequently, the variety of compositions experimented on metals, potteries and glass substrates is very large [2,3]. After a brief survey of the understanding of the Raman signature of crystalline and amorphous silicates [4,5], we will present an overview of the information extracted by on-site Raman microspectrometry on enamelled metal (Limoges, and Chinese *Cloisonnés* enamels), glass (Roman/Ptolemy to Mamluks, Middle-ages, Renaissance and Art Nouveau artefacts) and ceramic (*terra cotta*, stoneware, fritware, and porcelains) objects is proposed [6-10]. The technical exchanges as well as the different techniques used to obtain similar visual effects are addressed with emphasis on the most innovative productions that use metal or semi-conductor nanoparticles: lustre pottery, stoneware and *Celadons*, fritware, European soft-, hard- and hybrid-paste European and Asian porcelains.



On-site analysis of Qing Dynasty falangcai bowl (Musée des arts asiatiques-Guimet, Paris).

References

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