

Supplementary Materials

补充材料

The Raman signature of protonic species as a potential tool for the dating/authenticat
ion of glazed pottery

釉陶定年或鉴定潜在工具——质子物质的拉曼信号

Burcu Kırmızı^{1,2}, Stephen Chen³, Philippe Colomban¹

Burcu Kirmizi^{1,2}, 陈志宏³, Philippe Colomban¹

¹ Sorbonne Université, CNRS, MONARIS UMR 8233, Campus Pierre et-Marie Curie, 4 Place Jussieu
, 75005 Paris, France

¹ 索邦大学, 法国国家科学研究中心, MONARIS UMR 8233, Campus Pierre et - Marie Curie, 4 Place
Jussieu, 75005 Paris, France

² On leave from: Mimar Sinan Fine Arts University, School of Conservation and Restoration of
Movable Cultural Property, Cumhuriyet Mahallesi Silahşör Caddesi No:71, Bomonti/Şişli,

² 取样地点: 米玛悉楠美术大学, 可移动文化遗产保护和修复学院, Cumhuriyet Mahallesi Silahşör Ca
ddesi No:71, Bomonti/Şişli,

34380 Istanbul, Turkey

34380 Istanbul, Turkey

³ Royal Heritage Ceramics Authentication Ltd., Room 212, 16W, Hong Kong Science Park, Shatin
, Hong Kong

³ 皇朝遗珍古陶瓷实验室有限公司, 香港沙田香港科学园16W 212室

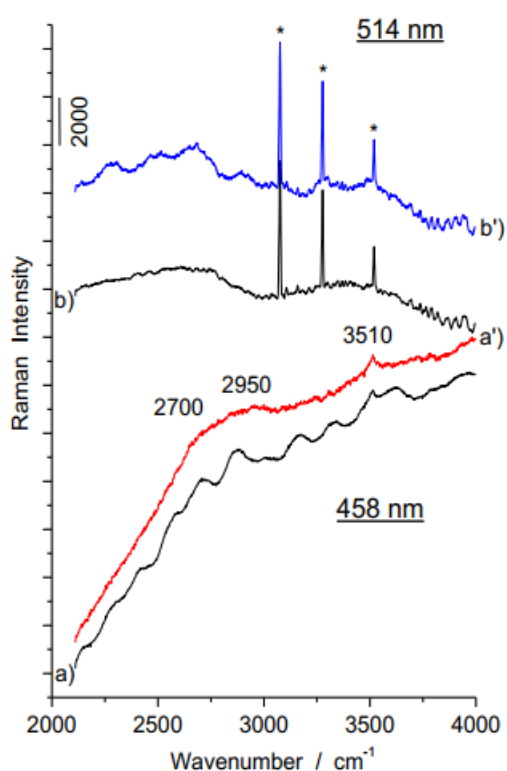
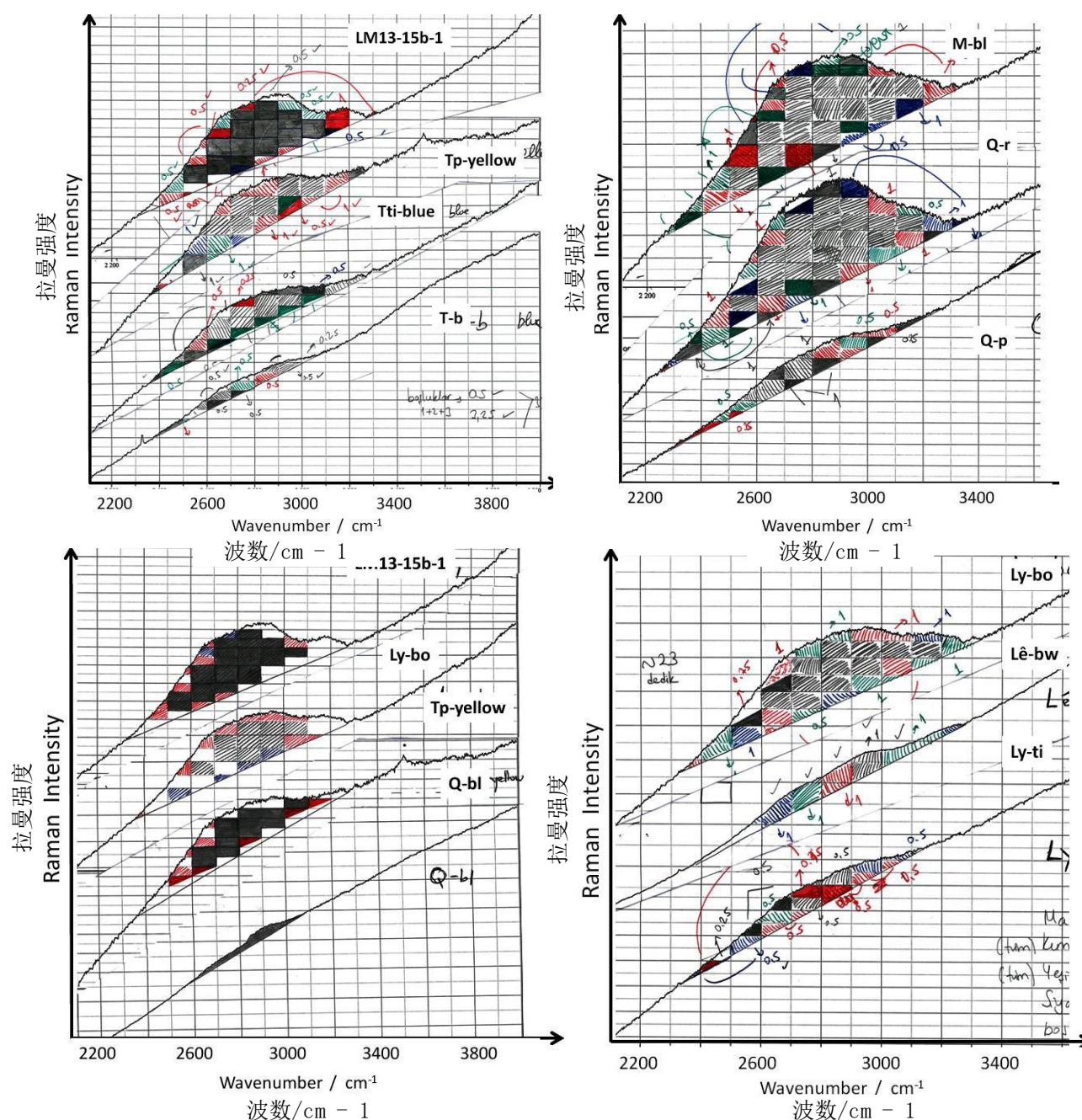


FIGURE S.1 Comparison of Raman spectra recorded on sample (T-p) with different lasers (514 and 458 nm); a,b: as recorded; a',b' : spectra after subtraction of the waves due to the filtering (x100 microscope objective and 200 μm confocal hole) (see text for details)



图S.2 计算H2O/OH波段面积的波校正光谱代表性示例。首先用直尺在质子物质特征下绘制基线，然后通过目测正方形来测量光谱和基线之间的面积，从而计算波段面积。

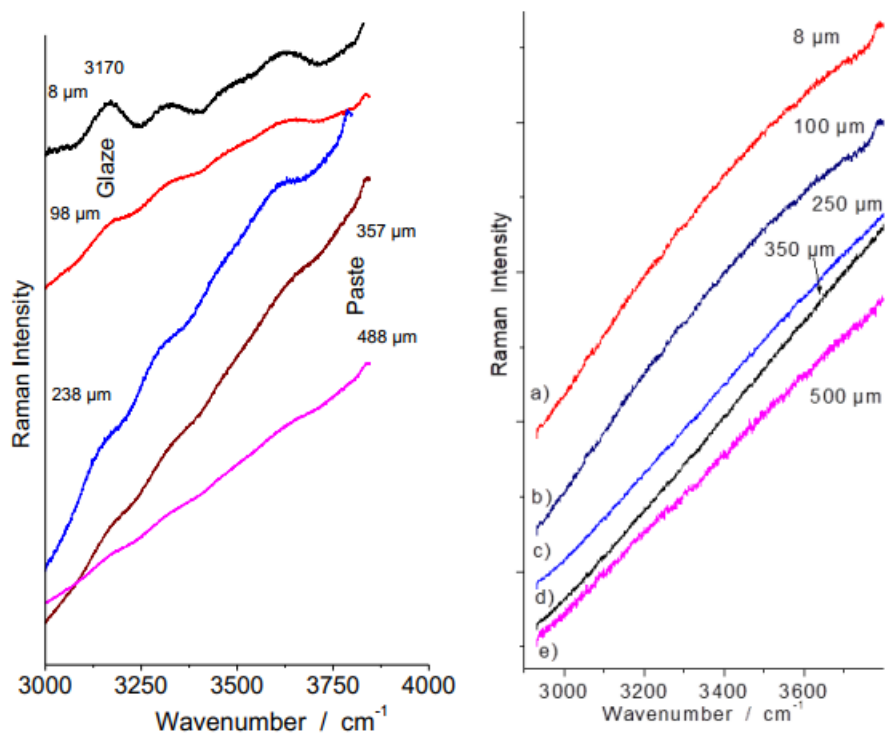


FIGURE S.3 Left: Representative (uncorrected) spectra recorded on *Famille Rose* (Q-r) porcelain section with x100 objective (c.h.: 200 μm) at different distances from the glaze surface (note the decreasing intensity of the band from the very surface towards the paste). Right: Corresponding wave-corrected spectra.

图S.3 左图：粉彩瓷剖面的代表性（未校正）光谱记录，在离釉面不同距离处采用x100物镜（c.h.：200 μm ）（注意从表面到糊料的波段强度降低）。右图：相应的波校正光谱。

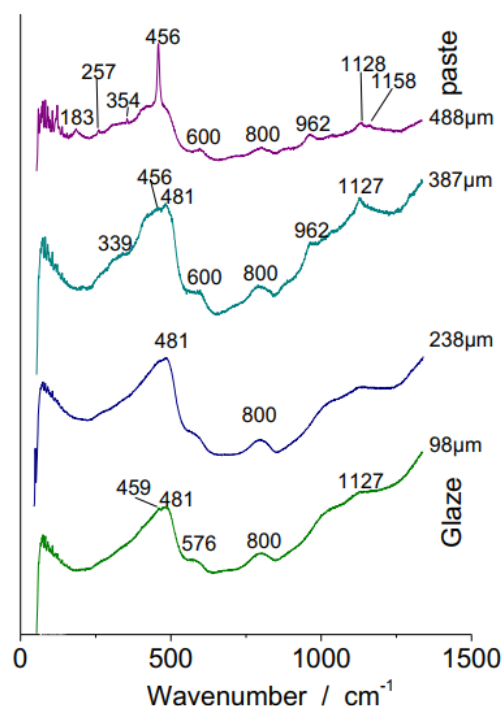


FIGURE S.4 Raman spectra of the glass signature recorded on *Famille Rose* (Q-r) porcelain section with x100 objective (c.h.: 200 μm) at different distances from the glaze surface: differentiation between glaze (only broad bands) and porcelain paste is obvious with the superimposition of characteristic mullite narrow peaks at 962 and 1128 cm^{-1} and in some cases the signature of quartz grain at 183, 257, 456 and 1158 cm^{-1} (see also text).

图S.4 粉彩瓷 (Q - r) 剖面的玻璃特征拉曼光谱记录, 在离釉面不同距离处采用x100物镜 (c. h. : 200 μm) : 釉料 (仅宽带) 和瓷泥之间的区别明显, 在962和1128 cm^{-1} 处叠加有特征莫来石窄峰, 在某些情况下, 183、257、456和1158 cm^{-1} 处有石英颗粒特征 (另见正文)。