

Integrated LIBS-Raman spectroscopic platform for concurrent elemental and molecular analysis

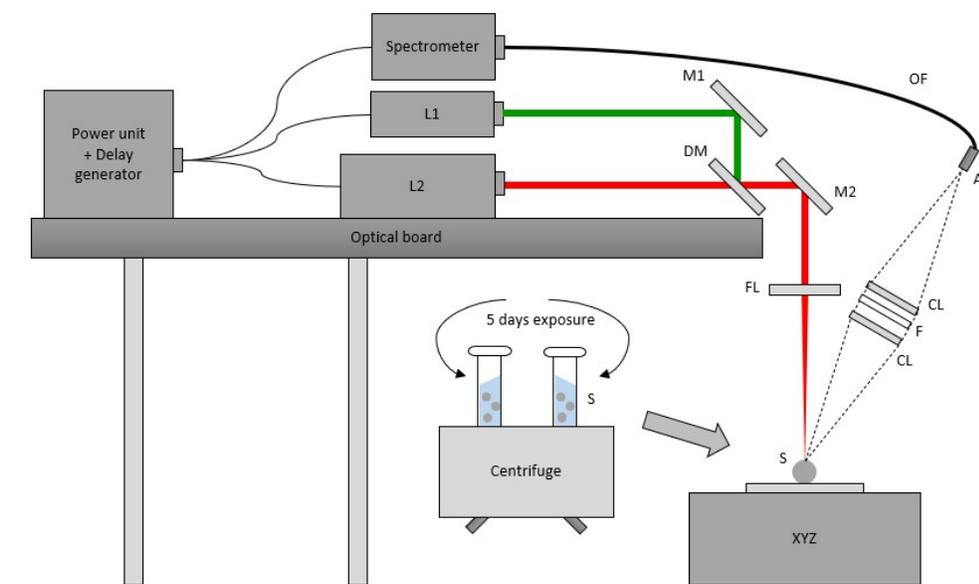
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Supplementary Material



(a)

(b)

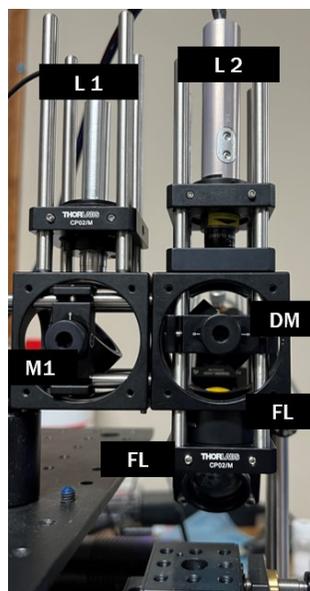


Figure S1. (a) Schematic of the combined LIBS and RS system. (b) Photograph of the assembled system provided for reference only. The integrated system is currently under patent application.

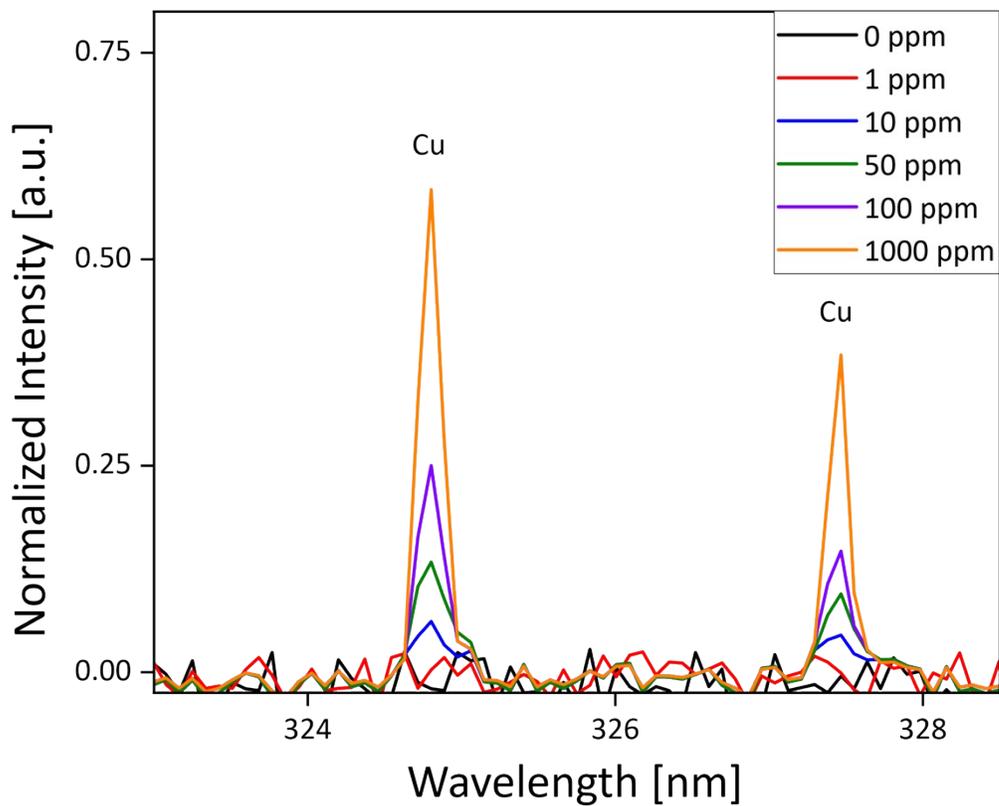
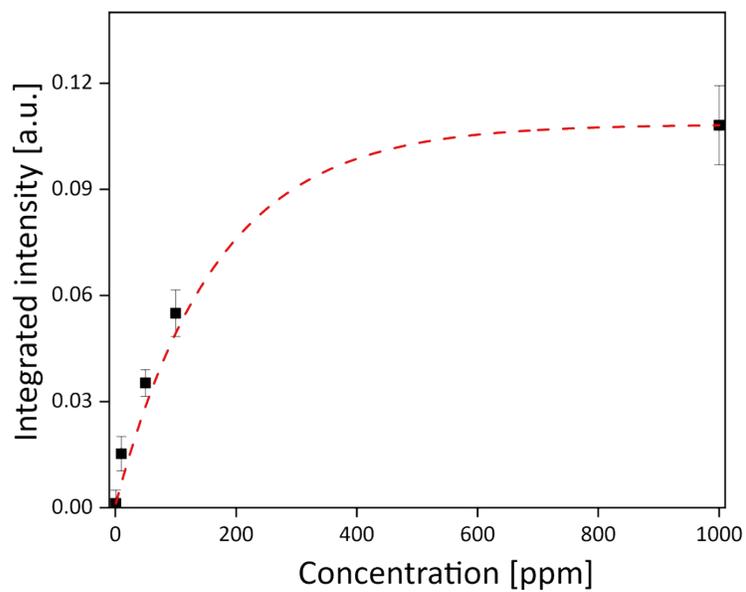


Figure S2. Normalized LIBS spectra of PS beads after exposure to Cu solutions with varying concentrations (0–1000 ppm). Two prominent Cu (I) emission lines near 324 nm and 327 nm show increasing intensity with higher Cu concentration.

(a)



(b)

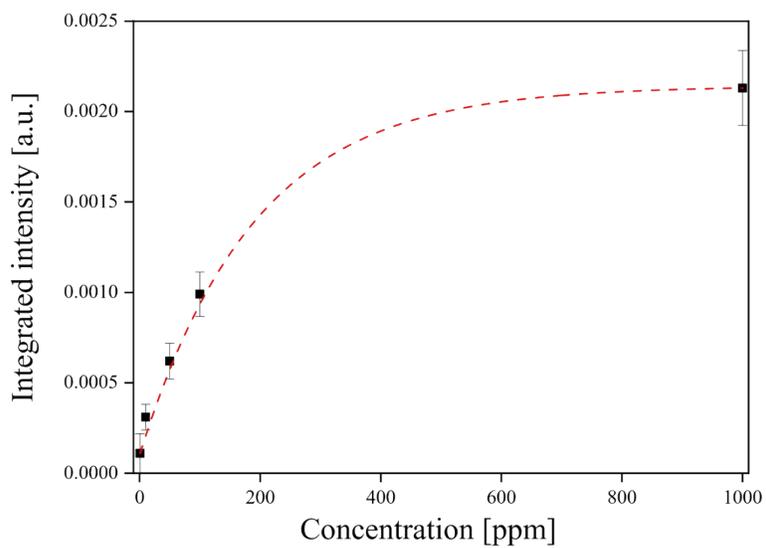


Figure S3. Calibration curves for (a) Pb and (b) Cu obtained from LIBS measurements on PS beads exposed to various metal concentrations (0–1000 ppm). The red dashed lines represent fitted regression curves.