Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics.

Probing Plasmon-Induced Surface Reactions Using Two-Dimensional Correlation Vibrational Spectroscopy

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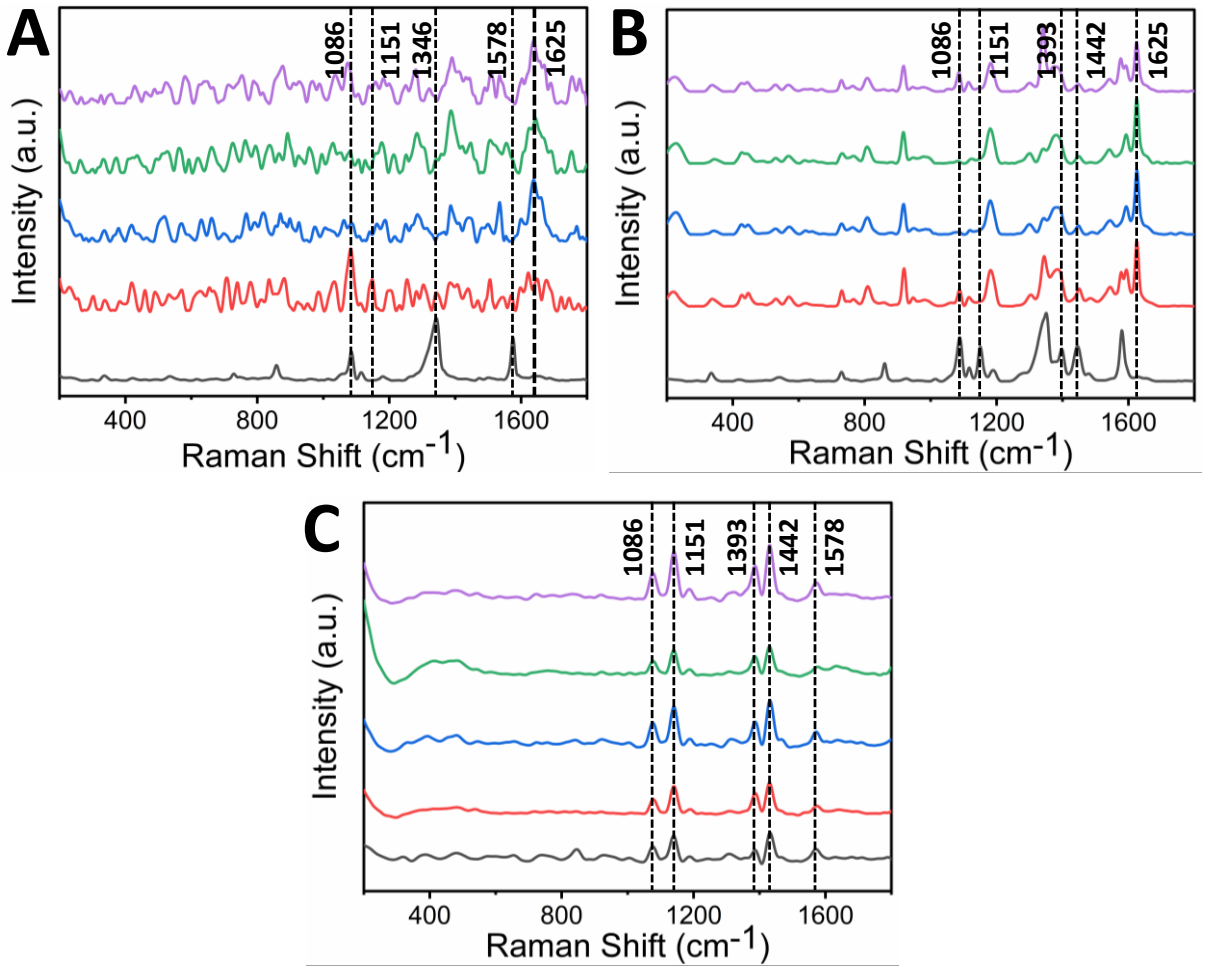

Figure S1: SERS spectra of 4-NTP in presence of water with increasing order of concentration (from top to bottom) with different types of nanoparticles (A) AuNPs, (B) Ag@Au core-shell, and (C) AuNFs. 10^{-3} M (black), 10^{-5} M (red), 10^{-7} M (blue), 10^{-9} M (green), 10^{-11} M (magenta).

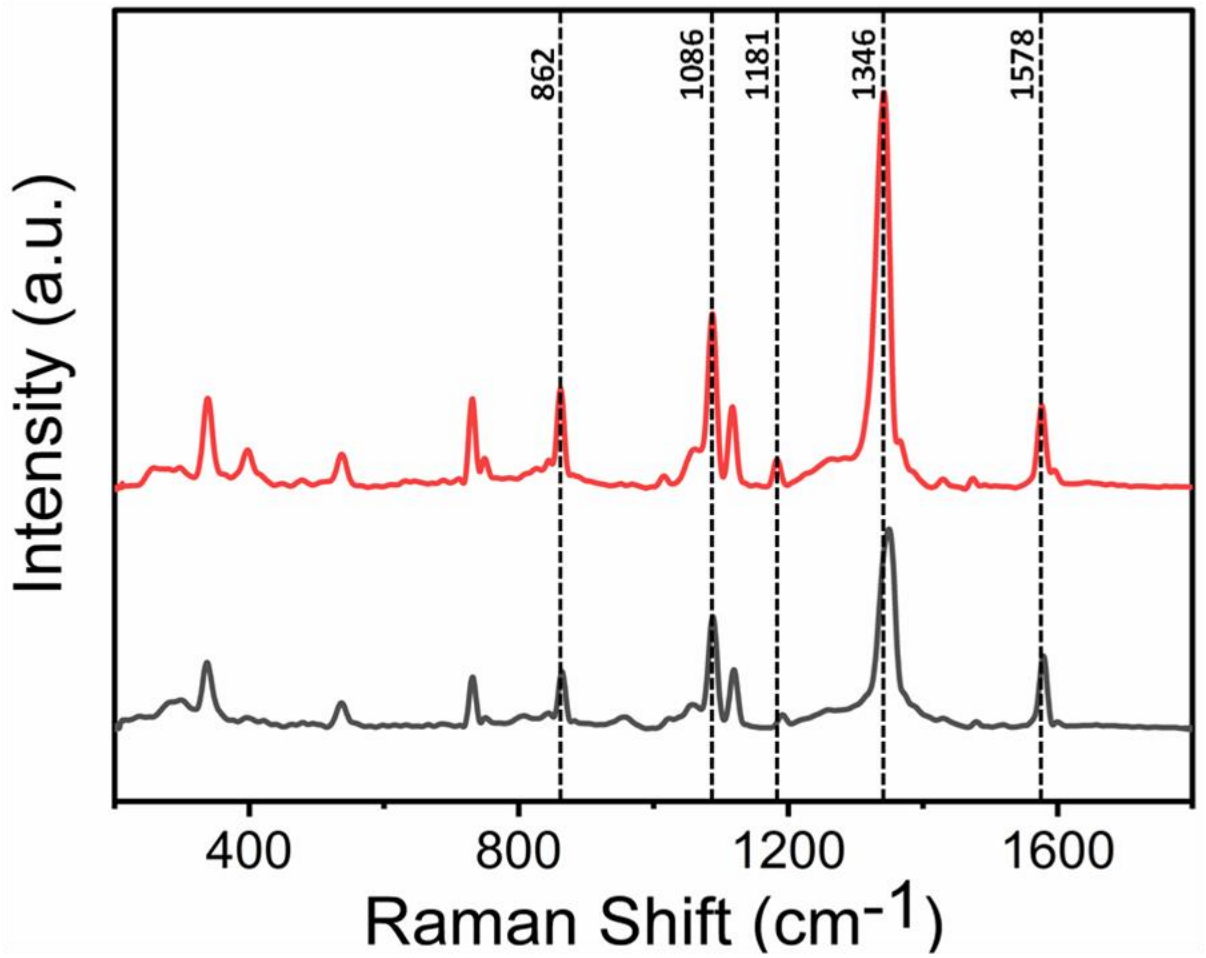

Figure S2: SERS spectra of 4-NTP with AgNP (black) and AuNP (red) acquired using 785nm laser at high surface coverage of analyte in wet condition.

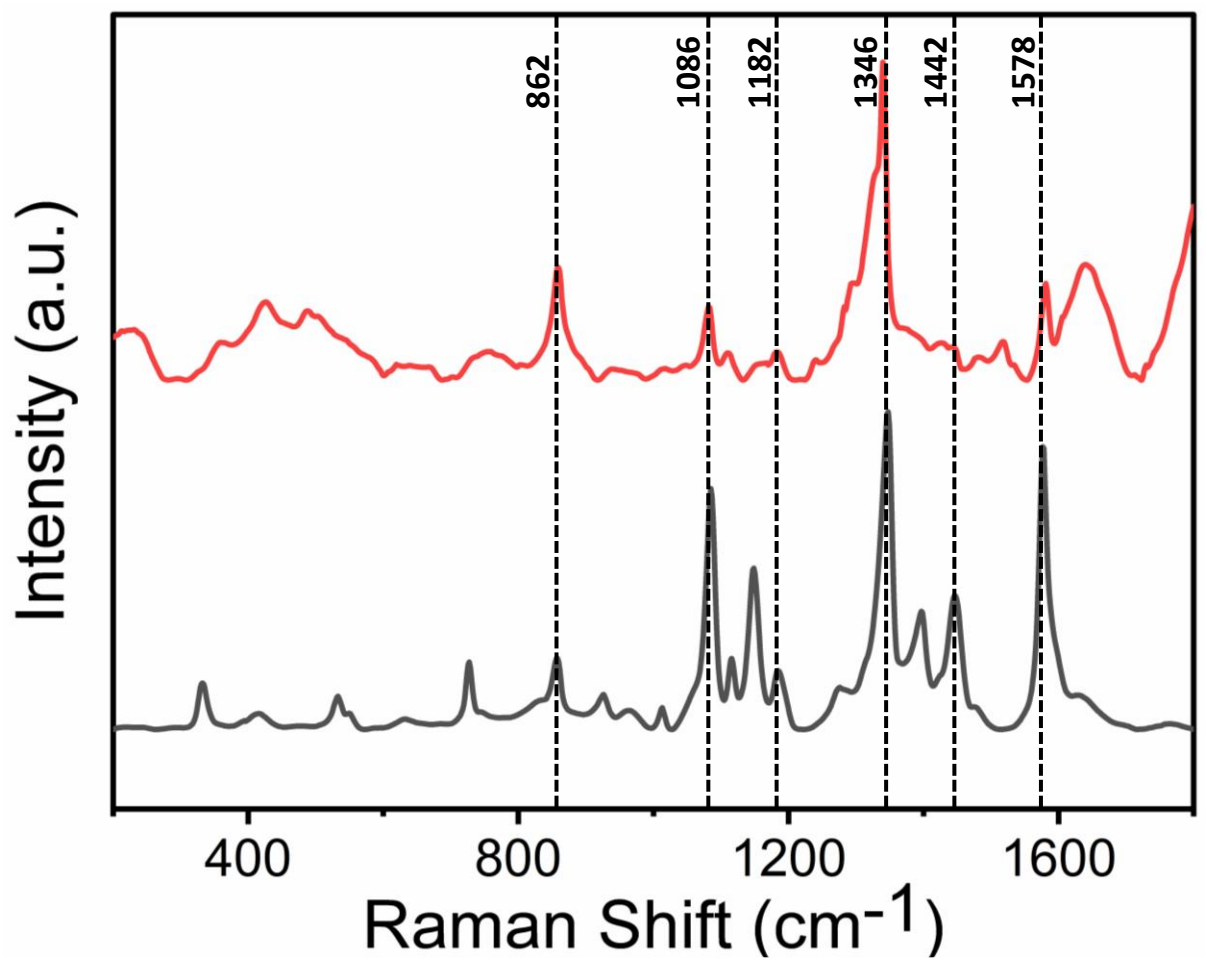

Figure S3: SERS spectra of 4-NTP with AgNPs (black) and AuNPs (red) using 532 nm laser with high exposure time in wet condition.

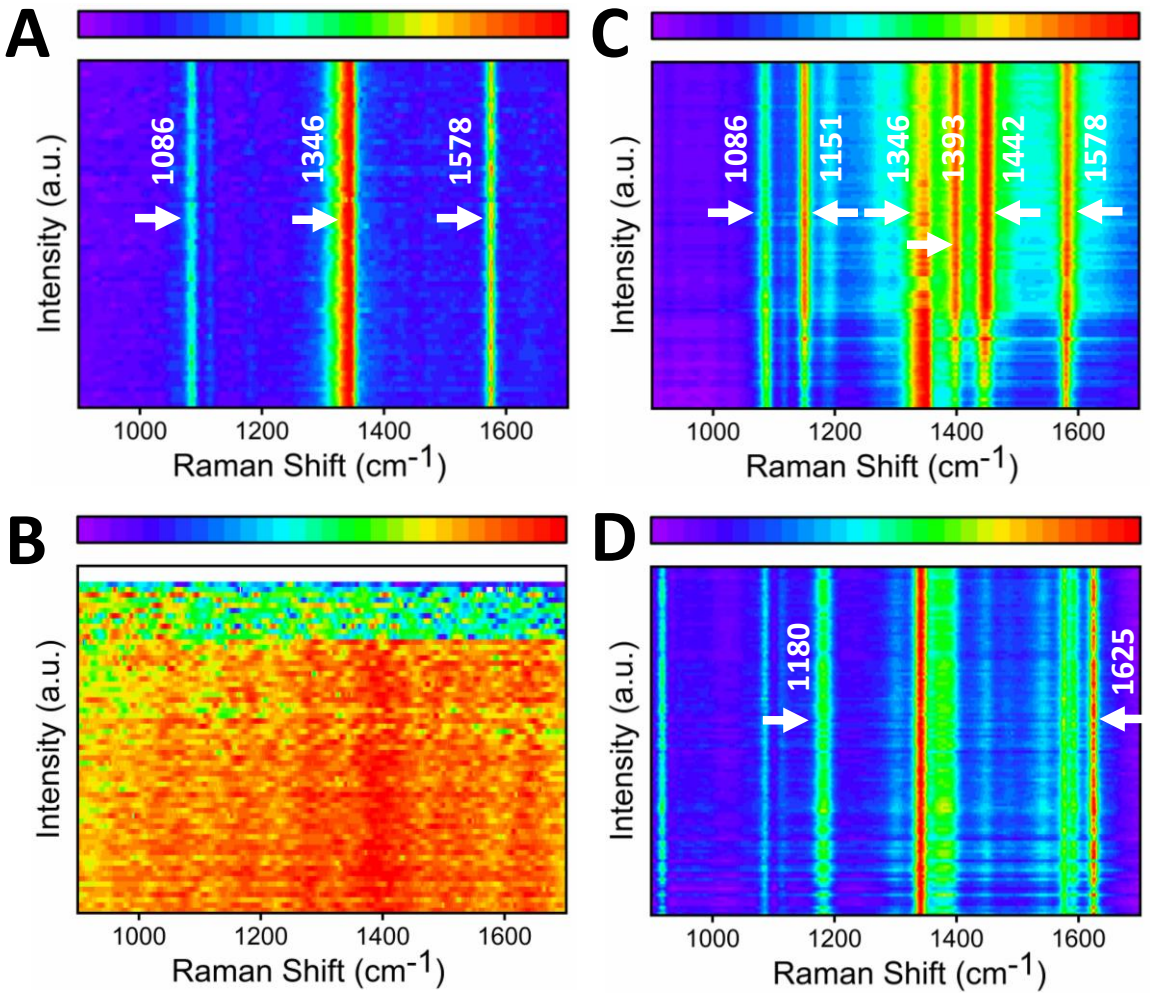

Figure S4: Heat map corresponding to time dependent SERS spectra of AuNPs (A) high concentration, (B) low concentration and of Ag@Au core-shell NPs, (C) high concentration, and (D) low concentration.

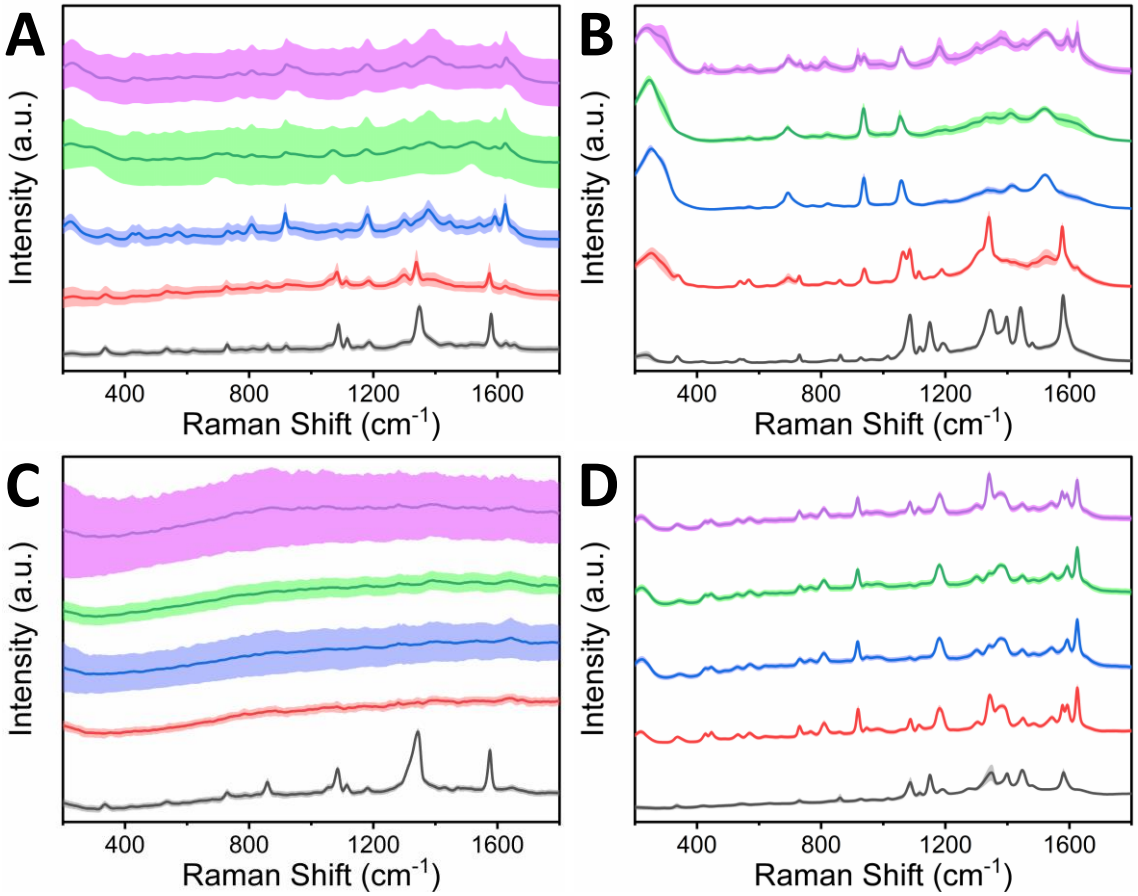

Figure S5: Time based average SERS spectra of 4-NTP at different surface coverage of analyte with (A) AgNPs in presence, and (B) absence of water, (C) with AuNPs, and (D) with Ag@Au core-shell nanoparticles. Concentration of analyte in increasing order from top to bottom, 10^{-3} M (black), 10^{-5} M (red), 10^{-7} M (blue), 10^{-9} M (green), and 10^{-11} M. (magenta).

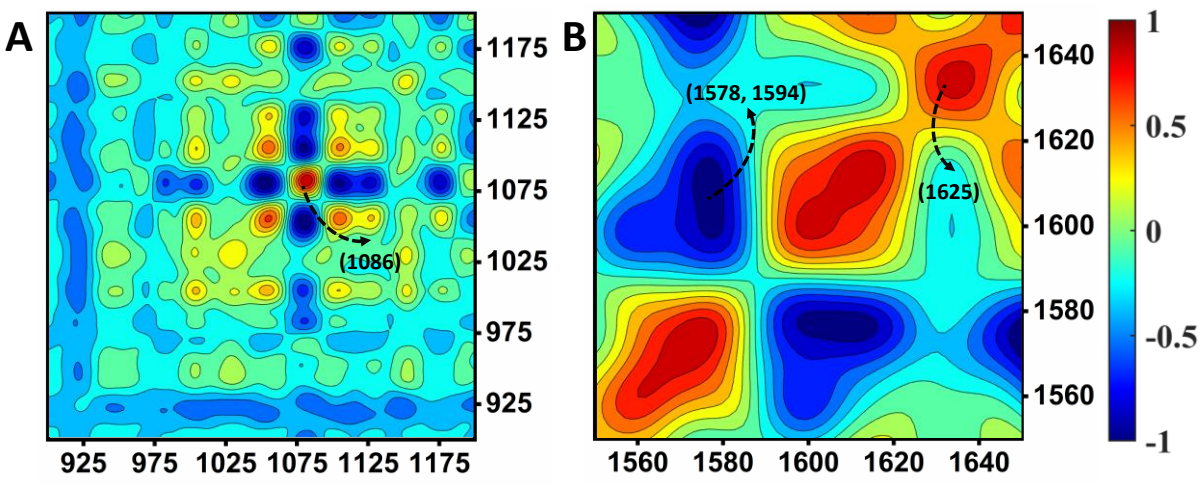

Figure S6: Synchronous maps with variable concentration of analyte with AuNPs for the spectral range of (A) 900 -1200 cm^{-1} and (B) 1550-1650 cm^{-1}.

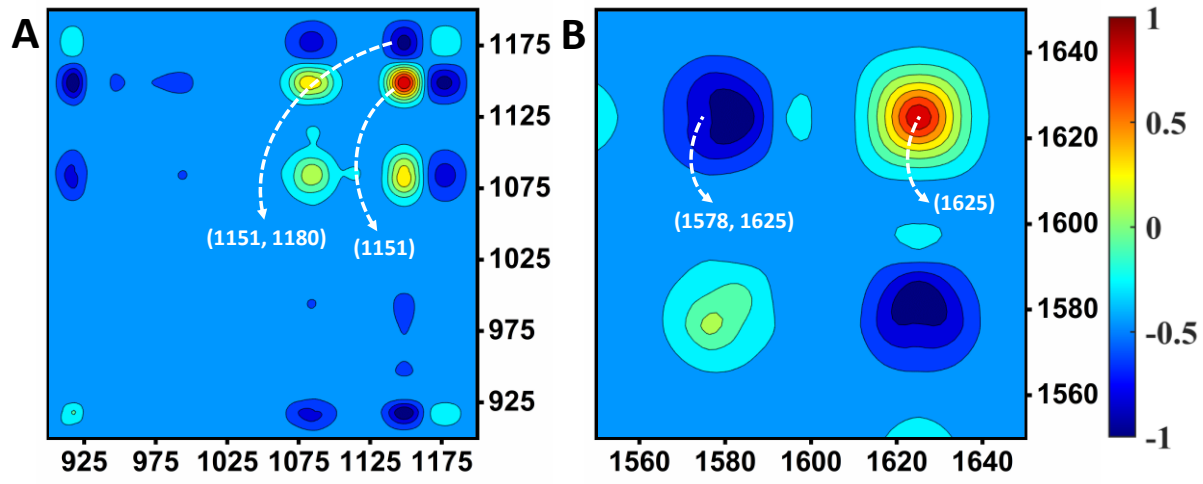

Figure S7: Synchronous maps with variable concentration of analyte with Ag@Au core-shell for the spectral range of (A) 900 -1200 cm^{-1} and (B) 1550-1650 cm^{-1}.

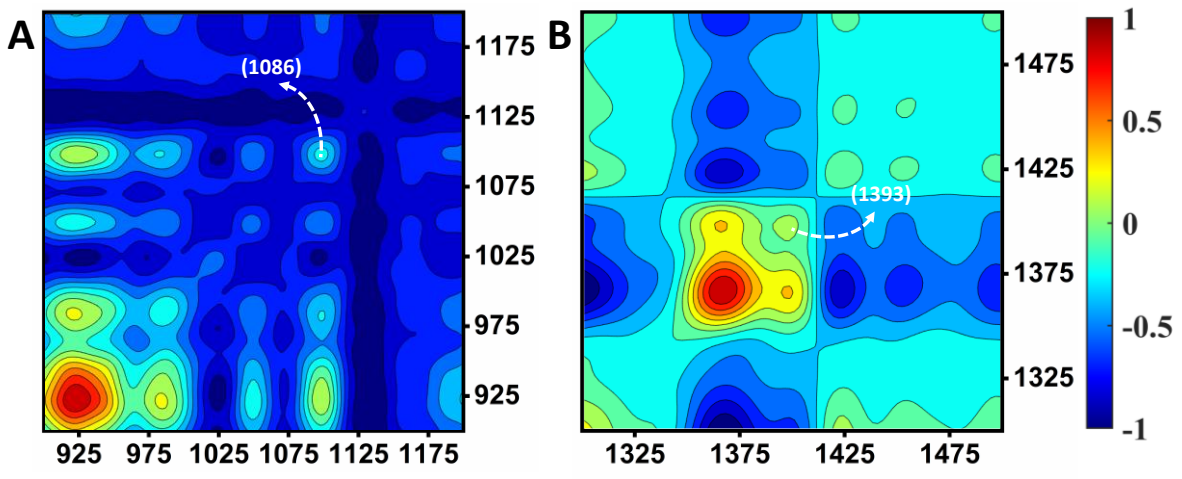

Figure S8: Synchronous maps with variable concentration of analyte with AuNFs for the spectral range of (A) 900 -1200 cm^{-1} and (B) 1300-1500 cm^{-1}.