

Supplementary Information

Controlled fabrication of Ag@clay nanomaterials for ultrasensitive and rapid surface-enhanced Raman spectroscopic detection

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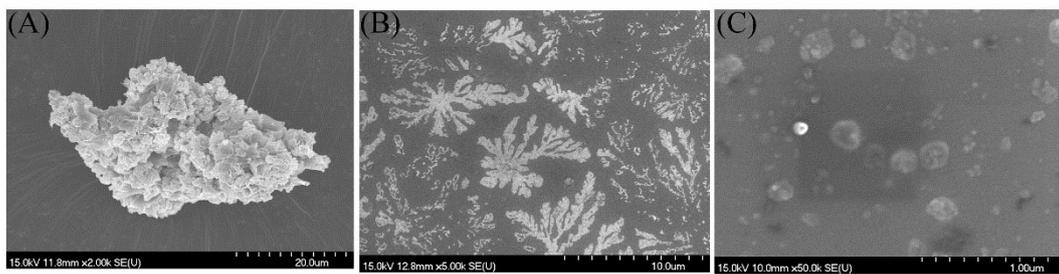


Fig. S1 The SEM images for Ag NPs (A), SDS controlled Ag NPs (B), and Ag@Hct nanocomposites (C). (Hct: hectorite, SDS: sodium dodecyl sulfate.)

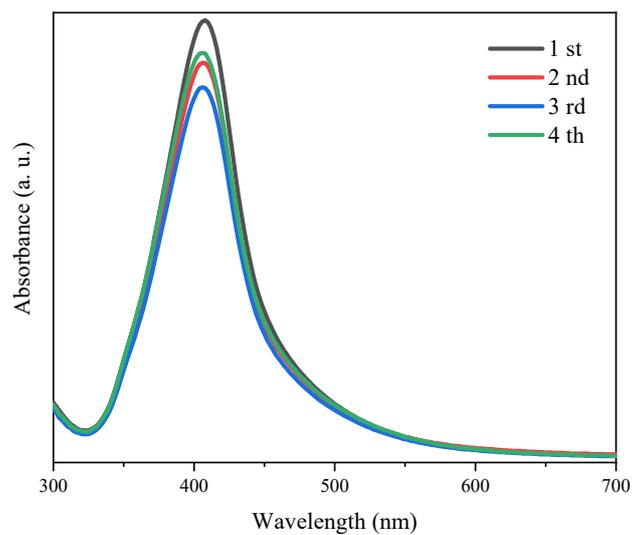


Fig. S2 The UV-vis spectra of Ag@Hct nanomaterials prepared in different batches. (black line: 1st batch; red line: 2nd batch; blue line: 3rd batch; green line: 4th) (Hct: hectorite)

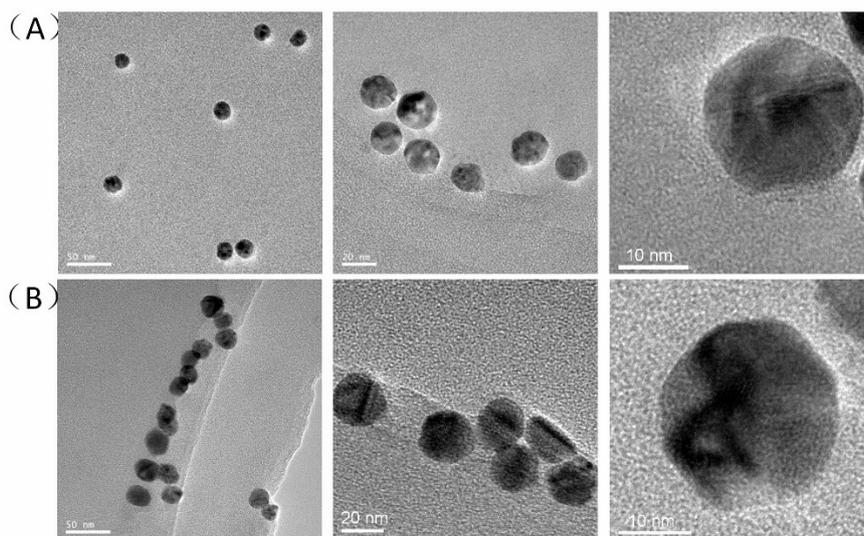


Fig. S3 The TEM images of Ag@Hct nanomaterials prepared in different batches. (A: 1st batch; B: 2nd batch) (Hct: hectorite)

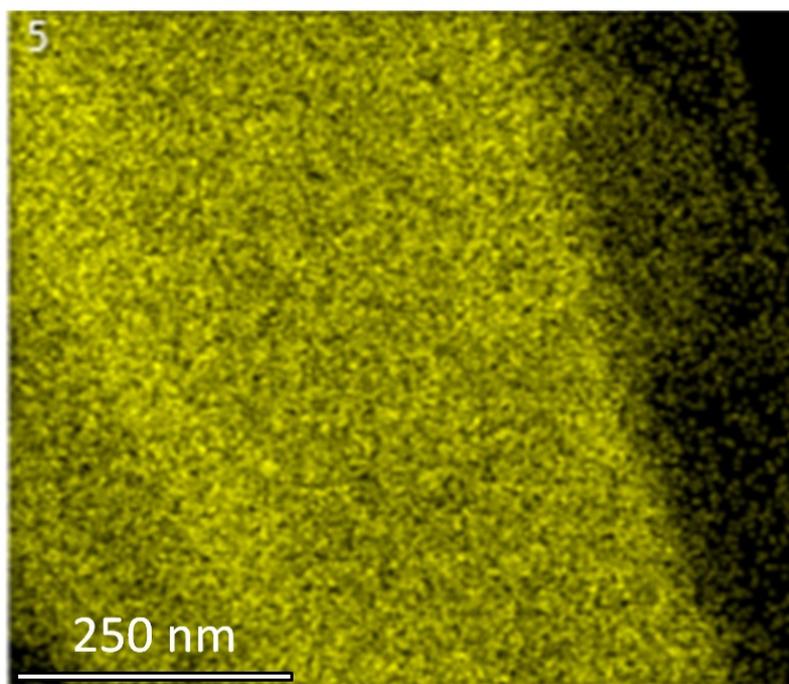


Fig. S4 Element mapping of C for SDS-free Ag@Hct nanomaterials. (Hct: hectorite , SDS: sodium dodecyl sulfate.)

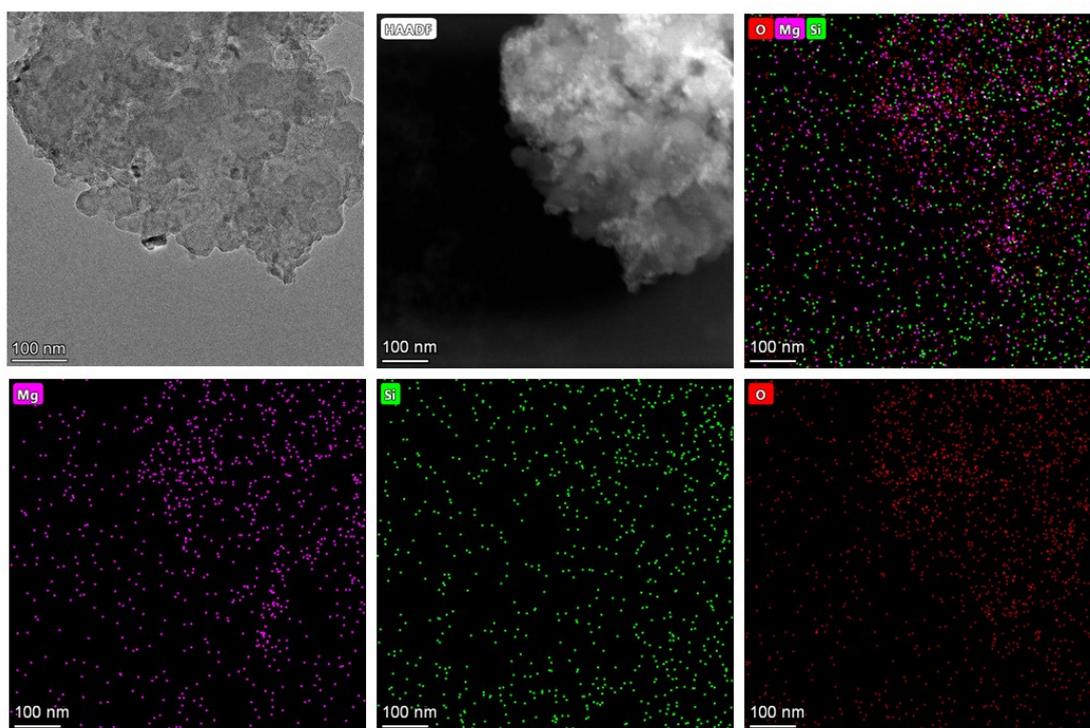


Fig. S5 The TEM images and elemental mapping for Hct NPs. (Hct: hectorite)

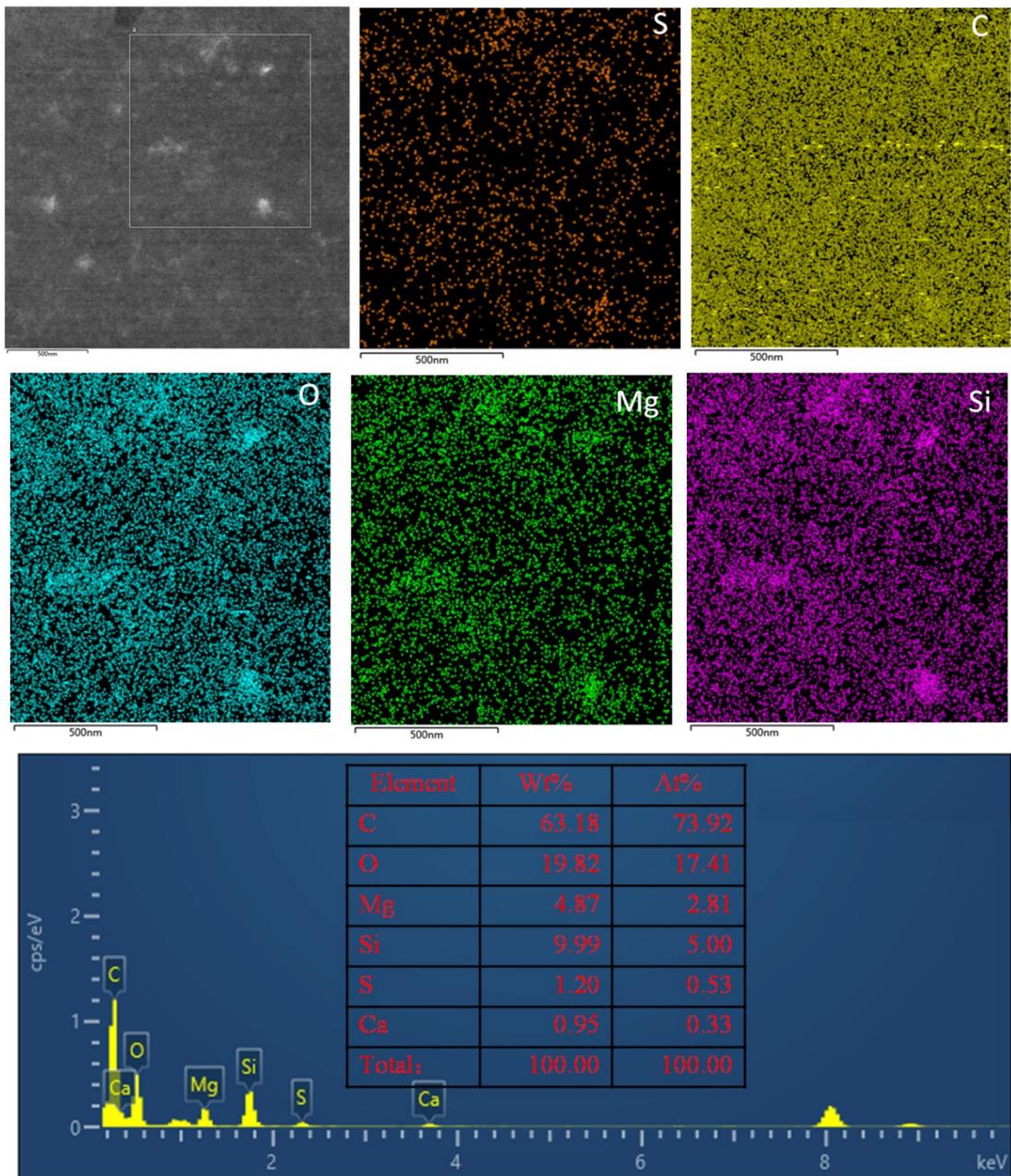


Fig. S6 The TEM image, elemental mapping, and EDS for SDS modified Hct NPs. (Hct: hectorite, SDS: sodium dodecyl sulfate)

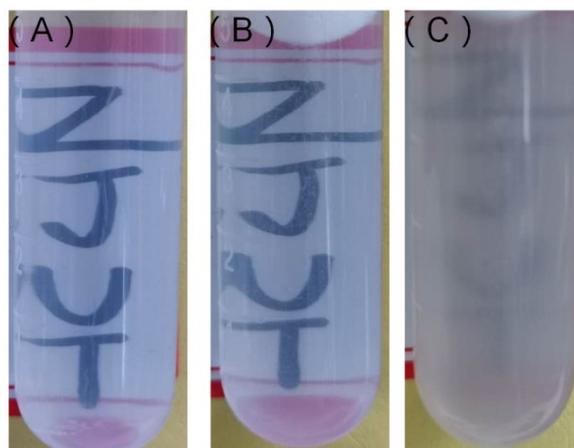


Fig. S7 The pictures for Hct suspension (A), SDS modified Hct dispersions (B), and mixed liquid of Hct-SDS-AgNO₃ (C). (Hct: hectorite, SDS: sodium dodecyl sulfate)

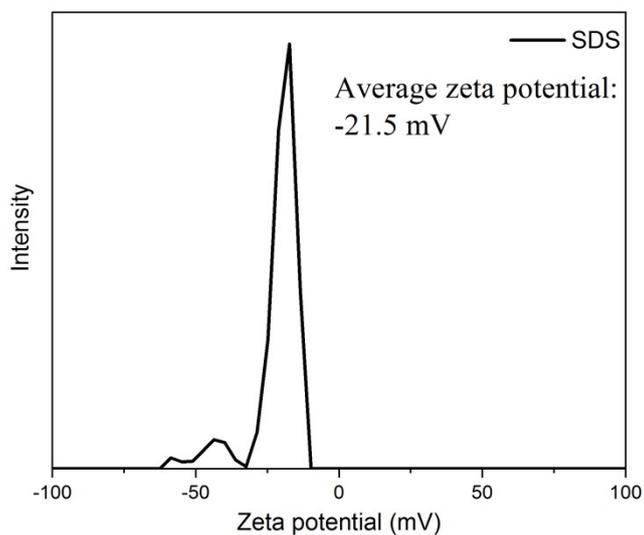


Fig. S8 The zeta potential distribution for SDS. (SDS: sodium dodecyl sulfate)

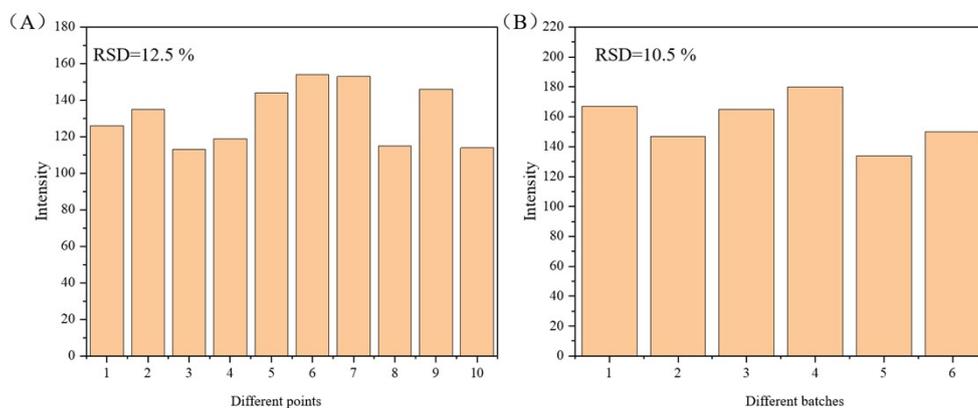


Fig. S9 Histograms of SERS intensity distribution at 1624 cm⁻¹ at 10 different points randomly collected from 10⁻¹² M of MB solution in Ag@Hct dispersion prepared by the one batch (A) and on the Ag@Hct substrates prepared from different batches (B). (Hct: hectorite, MB: methylene blue.)

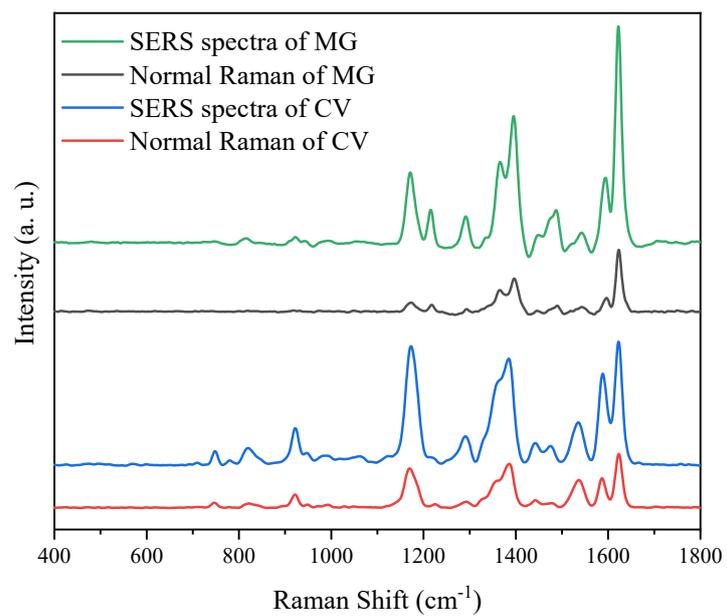


Fig. S10 The Raman spectra of CV (red line) and MG (black line). The SERS spectra of CV (blue line) and MG (green line) on Ag@Hct suspension. (Hct: hectorite, MG=malachite green; CV=crystal violet. The concentration of MG and CV was 10^{-3} M)