

Surface-enhanced Raman scattering (SERS) spectroscopy on localized silver nanoparticles decorated porous silicon substrate

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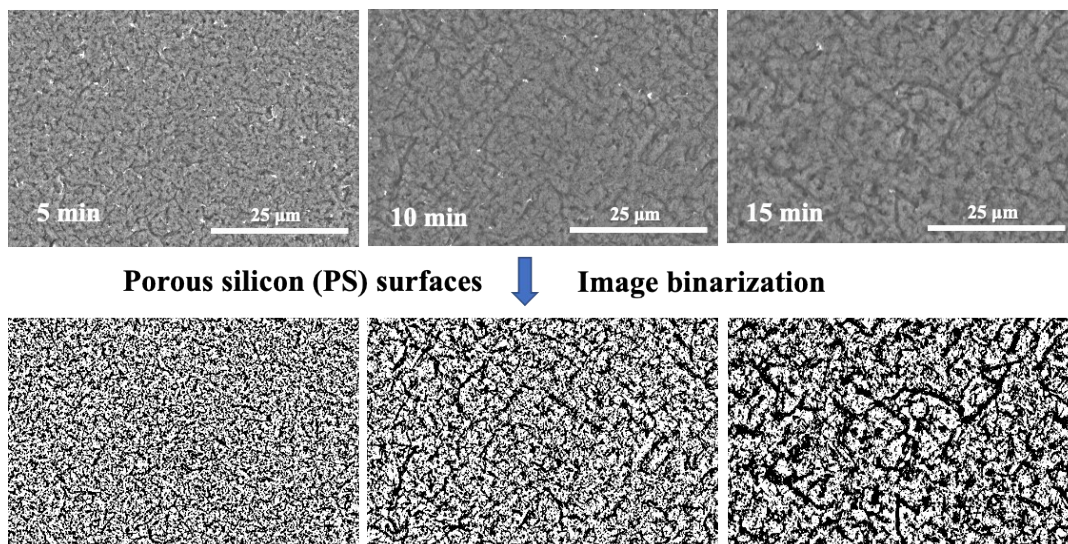


Figure S1. Image binarization of porous silicon (PS) FE-SEM images

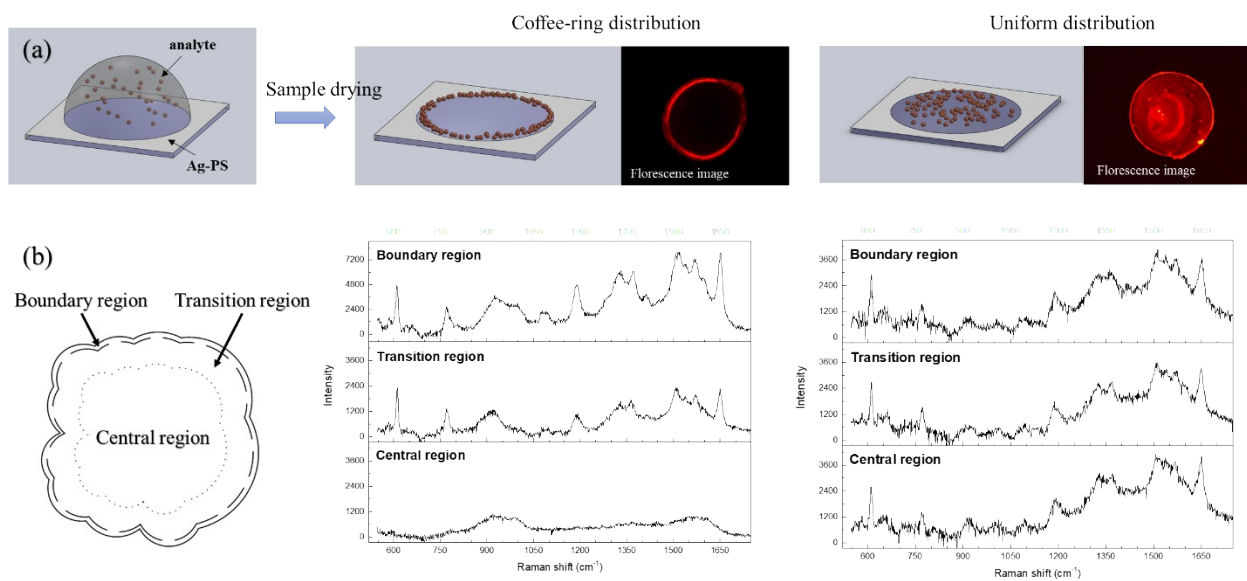
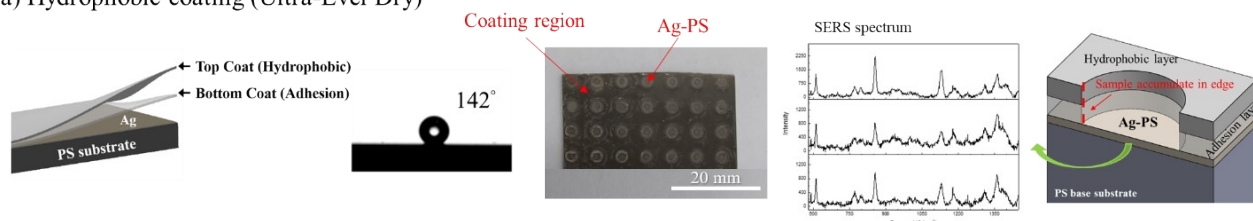


Figure S2. (a) Schematic illustration and fluorescent image of the coffee-ring shape and uniform analyte distribution after sample (R6G) drying. (b) three (boundary, transition, and central) distribution regions and their corresponding SERS spectrum of 10 μL , 10^{-5}M R6G sample. The $2 \times 2 \text{ cm}^2$ Ag-PS surface is generated by 5 mins MACE.

(a) Hydrophobic coating (Ultra-Ever Dry)



(b) Teflon hydrophobic film

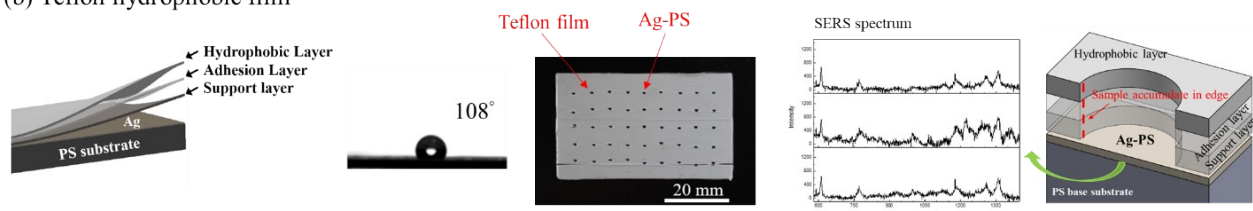


Figure S3. Schematic illustration of using (a) hydrophobic coating and (b) Teflon film to constatin the droplet from spreading on a hydrophilic Ag-PS surface and SER spectrum. The hydrophobic coating process starts with first attach an 800 μm radius shadow mask on the PS surface. We are then coating with bottom adhesive layer followed by top hydrophobic layer. For Teflon film, we use needle tip punching the Teflon film generating ~ 600 μm radius opening. Then attach to the PS surface.

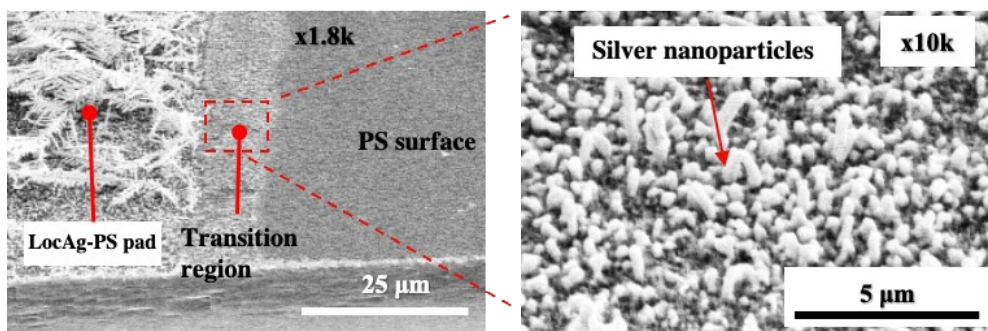


Figure S4. x1.8k (left) and x10k FE-SEM images showing partial deposition of silver nanoparticles in the transition region on porous silicon surface.



Figure S5. Photograph images of sample (water) droplets deposit on the LocAg-PS pad on (a) 5 mins (b) 10 mins and (c) 15 mins PS base substrates with 1 μ L and 2 μ L Ag-Drop deposition condition.