

## Supplementary information

# Preparation of Selective and Reproducible SERS Sensor of Hg<sup>2+</sup> Ions via Sunlight Induced Thiol-Yne Reaction on Gold Gratings

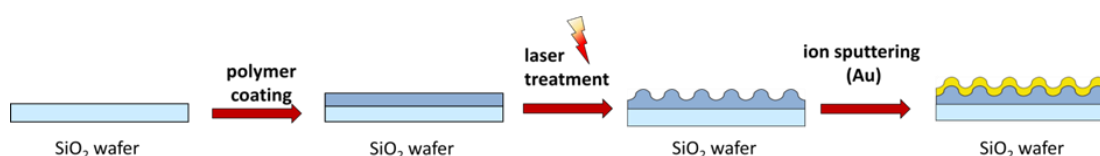
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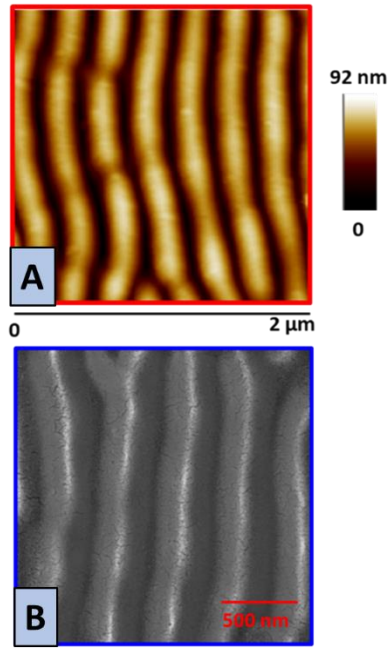
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*Grating preparation* Polymer films (Solution of epoxy resin - photoresist, Su-8, purchased from Microchem) were spin-coated (1000 rpm) from a solution onto freshly cleaned glass substrates (supplied by Glassbel Ltd, CR) during 30 min. The prepared samples were dried at 50°C for 24 h and irradiated by UV-source for 30 min. After that, the UV-irradiated samples were dried at 90°C for 2 h. Briefly, the flat polymer surface was patterned by KrF excimer laser (COMPexPro 50F, Coherent, Inc., wavelength 248 nm, pulse duration 20-40 ns, repetition rate 10 Hz). The laser beam was polarized linearly with a cube of a UV-grade fused silica with an active polarization layer. The samples were irradiated with 3500 laser pulses with laser fluencies 9 mJ cm<sup>-2</sup>. The angle of laser beam incidence with respect to the sample surface normal was 50° and the aperture with the area of 5×10 mm<sup>2</sup> was used. As a result, the periodic surface structures were created on the Su-8 surface with 1×2 cm<sup>2</sup> patterned area size. Then gold was deposited onto a patterned surface by vacuum sputtering (DC Ar plasma, gas purity of 99.995 %, a gas pressure of 4 Pa, a discharge power of 7.5 W, sputtering time 200 s, and thickness approx. 25 nm). The deposition of gold was accomplished from Au target (purity of 99.99 %, provided by Safina, Czech Republic).



**Figure S1.** Scheme of SPP supporting gold preparation.



**Figure S2.** AFM and SEM images of gold grating.