Supplementary Material (ESI) for *Nanoscale*

Electronic supplementary Information

Gold nanoparticle superlattices as functional solids for concomitant conductivity and SERS tuning

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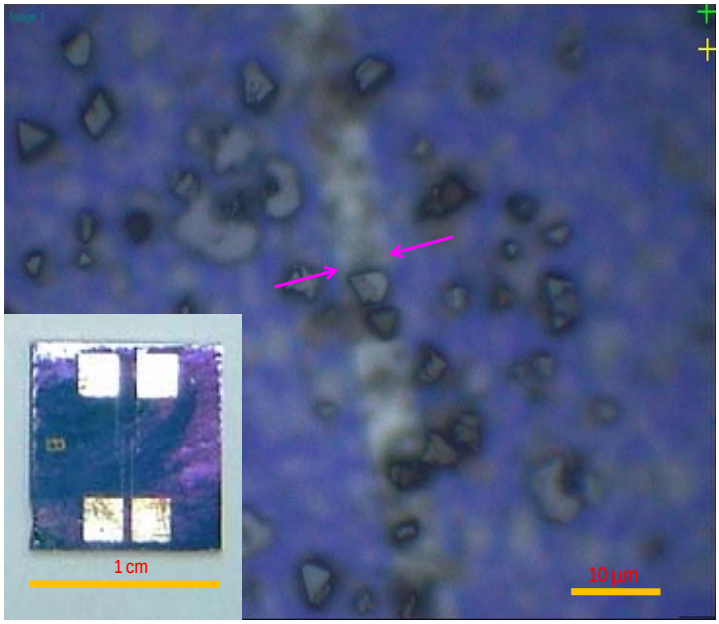

Figure S1. Optical microscopic image of the SL film sitting on the electrode. A single gold electrode with SL crystals spread on the SL film is seen. As the SL film covers the electrode, the metallic surface of the electrode is only faintly visible. Photograph of the 1 cm x 1 cm electrode with the gold pads (appears as white squares) is given in the inset.

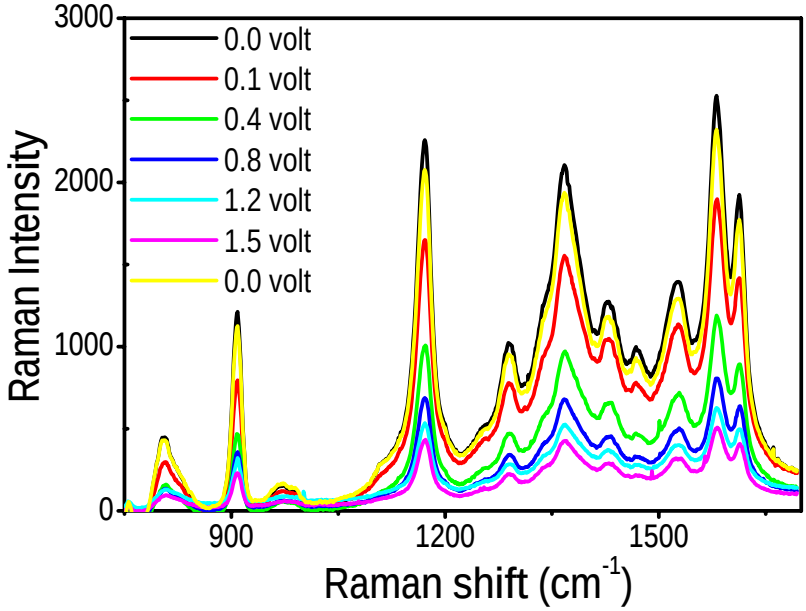

Figure S2. Change in Raman spectrum with applied potential. The spectra recover completely upon removing the applied potential.

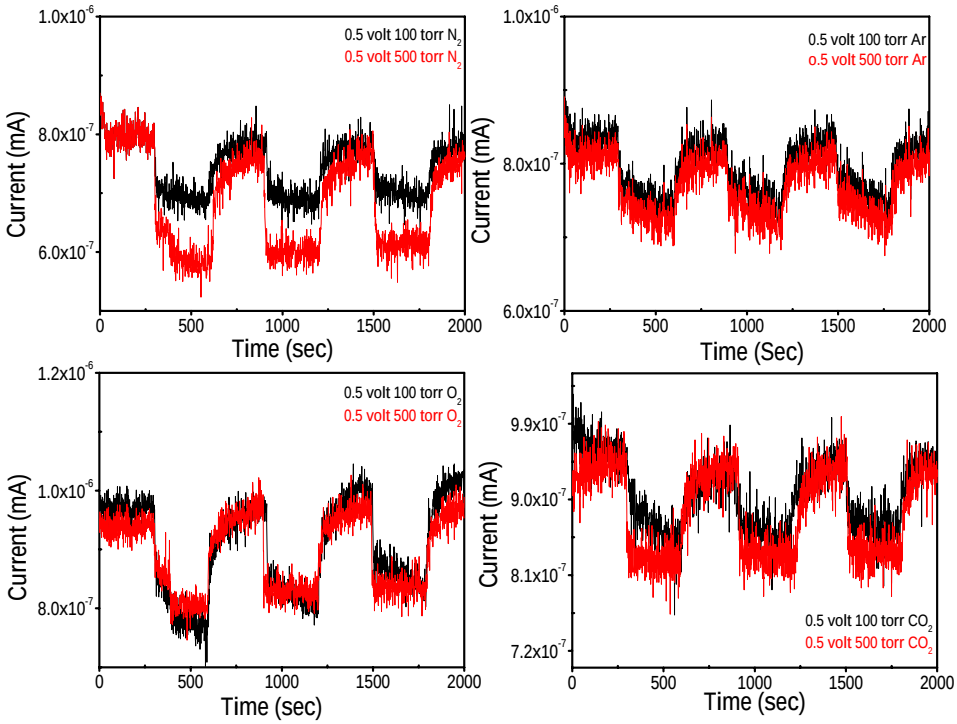

Figure S3. Conductance changes of SLs (0.5 volt) under the exposure of 100 and 500 torr of N_2, Ar, O_2 and CO_2, respectively.

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