

Abstract Submitted
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Solution Processed SERS Substrates NARAYAN SHARMA, Bowling Green State University — Surface enhanced Raman spectroscopy (SERS) is a great analytical tool to obtain information on molecular composition. This technique has gained a reputation as one of the most sensitive spectroscopic methods available for the detection of a wide range of adsorbate molecules down to a single molecule detection limit. The most investigated metals for SERS substrates are gold (Au) and silver (Ag). Unfortunately, the fabrication of such devices poses a significant challenge due to an expensive deposition technology including, vapor deposition, electron-beam lithography, focused ion-beam lithography, and nano-transfer printing. Herein, we introduce a simple and low-cost approach to fabricate SERS substrates using roll-to-roll printing of matrix encapsulated gold nanoparticle arrays. The enhancement of Raman signals obtained using these materials was found to be comparable to commercially available SERS substrates. We expect that an ongoing optimization of the film morphology should yield further enhancement of the demonstrated SERS architecture.

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