

Nanogratings allow one to efficiently use multiple metals as a SERS substrates

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The wide current availability of nanofabrication tools in wafer foundries at many universities has broadened the range of nanostructures that can be used for making SERS substrates, and the ease with which these can be integrated in sample delivery and for pre-treatments, such as sample dilution or concentration. Among the possibilities are the fabrication of nanogratings with optimized structures for SERS enhancement and resonance wavelength allowing the surface chemistry of the substrate to be optimized to the chemical affinities of the target analyte being detected, perhaps at the expense of enhancement, but in response to the dictum that an analyte that does not adsorb would be undetectable however great the enhancement. Additionally, such foundry-fabricated structures could be easily incorporated into a microfluidic device or other useful sample delivery systems. The talk will illustrate this approach with results obtained through a collaborative effort at UCSB co-led by Profs. Carl Meinhart of the department of Mechanical Engineering and the Martin Moskovits in Chemistry and Biochemistry.