**ABSTRACT**

A theoretical study on the performance of various noble metals with Ag nanocomposites is performed. A thin Ag/metal nanocomposite layer of various values of f(fraction) is coated over the core. The overall performance of the proposed sensor were studied by altering the thickness of the layer considered. The overall performance of the sensor for the optimized thickness(25nm) is studied in terms of FWHM , sensitivity, Q factor and SNR ratio. On comparing the results obtained, the best nanocomposite combination suitable for sensor applications has been predicted.