Abstract

This work deals with preparation of substrates suitable for surface enhanced Raman spectroscopy (SERS) applications by sputtering deposition of gold layer on the polytetrafluoreylene (PTFE) foil. Time of sputtering was investigated with respect to the surface properties. The ability of PTFE-Au substrates to enhance Raman signals was investigated by immobilization of biphenyl-4,4'-dithiol (BFD) from the solutions with various concentrations. BFD was also used for preparation of sandwich structures with Au or Ag nanoparticles by two different procedures. Results showed that PTFE can be used for fabrication of SERS active substrate with easy handle properties at low cost. This substrate was sufficient for the measurement of SERS spectrum of BFD even at 10-8 mol/l concentration.

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Keywords: SERS; Nanoparticles; Sandwich structures; Polytetrafluoreylene; Au layer

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