**ABSTRACT**

Rapid advance of nano structuring technologies offers new possibilities for flexible and low-cost fabrication of plasmonic components and devices. When a radially polarized Bessel Gaussian beam is focused onto a metal-dielectric interface, the entire beam is TM polarized with respect to the interface. Consequently surface plasmons can be excited at all directions. These surface plasmons will propagate to the geometric center, constructively interfere with each other and generate a strongly focused evanescent non diffracting Bessel beam. In this paper, we analysed the excitation of surface plasmon polaritons SPP by focusing a radially polarised Bessel Gaussian beam on a Chalcogenide glass plate and a gold layer coated with a thin layer of graphene. The graphene layer is used to enhance the adsorption of biomolecules. However the change in the intensity distribution of the generated surface plasmon owing to the presence of graphene layer is very important and is analysed numerically in this work.