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Surface-plasmon polaritons on graphene-metal surface COSKUN KOCABAS, OMER SALIHOGLU, SINAN BALCI, Bilkent University, Department of Physics, ADVANCED RESEARCH LABORATORY TEAM — In this presentation we present a new application of graphene in the field of plasmonics. We studied excitation of surface-plasmon polaritons on graphene-metal surface. The metal surface is functionalized by transfer printing of a graphene layer grown by chemical vapor deposition on copper foils. Surface plasmon resonance (SPR) characteristics of monolayer and multilayer graphene on the metal surface are presented. The results reveal the essential features predicted by the calculations based on transfer matrix method. As an application, we fabricated a surface plasmon resonance sensor integrated with a microfluidic device to study nonspecific physical interaction between graphene layer and proteins. We obtained association and dissociation coefficient of BSA adsorbed on graphene layer. We believe that graphene functionalized SPR sensors could provide a new platform to study interactions between graphene and molecules.

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