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Electrochemically active functionalization of graphene for development of prototype biosensing devices

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Abstract

Development of low-cost, robust and ultra-sensing material platforms for clinically important analytes is one of the key steps for new-generation biosensors. As a promising 2D material, graphene has emerged to fulfill such purposes^[1]. Graphene based materials have shown the potential to be an ideal support for chemosensors and biosensors^[2]. Functionalization of graphene can further transform this 2D material into various versatile platforms for different applications^[3,4]. In this presentation, we will address some of our recent investigations: (1) electrochemically active functionalization of graphene nanosheets, (2) loading of different enzymes on functionalized graphene matrix, and (3) electrochemical performances of the functionalized nano-hybrid materials based prototype sensors. These latest advancements could be crucial for the design and fabrication of low-cost, flexible and disposable biosensors.

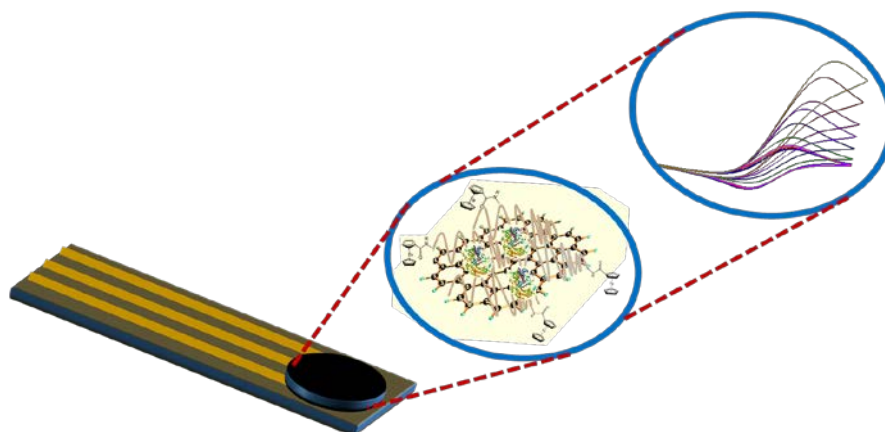


Figure 1. Schematic diagram of graphene composites based printed electrochemical biosensors.

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