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Introducing Schottky interface as a novel strategy for ultrasensitive nonenzymatic glucose detection

Xingtao Wang[a], *Minggang Zhao*[a,*], *Hui Li*[b], *Yawen Song*[a], *Yufeng Cheng*[a], *Shougang Chen*[a,*]

[a]Department of Materials Science and Engineering, Ocean University of China, 266100 Qingdao, PR China

[b]Optoelectronic Materials and Technologies Engineering Laboratory of Shandong, Physics Department, Qingdao University of Science and Technology, Qingdao 266100, PR China

Abstract

A novel nonenzymatic glucose sensor based on Schottky interface was successfully fabricated by facile annealed and sputtering methods. The multiple catalysis effect of NiO, Au and 3D architecture improved the catalytic activity towards glucose. In addition, the biosensing performance was enhanced significantly due to the introducing of Schottky interface. Consequently, the fabricated biosensor demonstrated excellent performance in sensing glucose with a high sensitivity (6302.25 μA mM^{-1} cm^{-2}), low detection limit (1.16 μM), good repeatability and long-term stability. The results indicated that introducing Schottky interface can be a promising strategy in the development of nonenzymatic glucose biosensors.

Keywords: Schottky interface, 3D architecture, NiO-Au, glucose, biosensor

*Corresponding Author E-mail: zhaomg@ouc.edu.cn； sgchen@ouc.edu.cn