

Real-time detection of HCl gas and Glucose using nanowire field effect transistor

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With the increasing interest in nanoscale science and technology, nanowires have become a subject of prolific research due to their potential applications in the past decade. The conventional HCl gas and glucose sensors have the major drawback in terms of low sensitivity, selectivity, and precision. As a part of efforts to overcome these limitations, real-time HCl gas and glucose detection using main principle of nanowire field effect transistor (FET) was investigated in this work. For this work, the porphyrin and glucose oxidase were functionalized successfully on the surface of nanowire FET device. Then, the nanosensors developed in this work were demonstrated to be capable of highly selective and sensitive detection of target materials. Finally, the pros and cons of this approach will be compared with the conventional technologies.