

Study on effective functionalization of nanowire FET for chemical sensor

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Nanowire field effect transistor(FET) with 4th industrial revolution has been regarded as an excellent platform for chemical and biological monitoring sensors with high sensitivity and selectivity. However, this technology still remains under academic research due to several issues which obstruct the commercial stages of this technology. In this work, nanowire FET was fabricated by sequential processes of nano-imprint lithography, plasma enhanced deposition and etch. Effective surface modification on the semiconductor nanowire device has researched to detect highly toxic chemicals such as HCl under the room temperature. Finally, we believe that this work can lead to a paradigm about novel fabrication and sensing mechanism toward a wide range of applications.