

Abstract Submitted
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Chemical and bio- sensor chips based on nanowires and carbon nanotube CHONGWU ZHOU, FUMIAKI ISHIKAWA, USC — Significant effort has been devoted to the study of sensors using one-dimensional structured nanomaterials. Integration with other functionalities or combinational use of such sensors is a promising direction with which highly sophisticated functionalities can be realized. In this talk, we will present the use of the integrated/combined nano-chemical/bio sensors for more sensitive, precise, and selective sensing. We integrated micromachined heater into the chemical sensor based on In₂O₃ nanowire (NW), and the sensing experiments at the elevated temperatures demonstrated the detection of ethanol, which is undetectable at room temperature. Furthermore, combinational use of NW and carbon nanotube (CNT) chemical sensors combined with the micromachined heater were demonstrated toward the construction of electronic nose system. In addition, manufacturable multiplexed biosensor chips based on In₂O₃ NW, CNT, and aligned CNT were successfully fabricated with a highly generic strategy that can be extended to other one-dimensional materials. These sensors chips can be used as the platform for multiplexed sensing combined with selective functionalization.

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