

## Development of High Performance Chemiresistor by Metal Nanowire Array

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Chemiresistor is one of the gas sensors, or electronic nose, which changes resistance of sensing channel by exposure to target VOCs. The chemiresistor has some great features like as miniaturization, low power consumption, reversible and repeatable operation. Many of studies about chemiresistor are forced into detecting specific VOCs in exhaled breath to diagnose a disease, e.g. lung cancer, but some requirements for practical application, like as high specificity, long-term stability is still challengeable.

In this study, we propose the new concept for the chemiresistor sensing channel by platinum (Pt) nanowire array. This nanowire array was fabricated by modified secondary sputtering lithography technique (SSL) (H.-T. Jung, et al., Nano Lett. 2010, 10). The small feature sized nanowire array (<40nm) by SSL technique would provide the high sensitivity because the large portion of the electron flows on the surface of the metallic structure and good long term stability since the nanowire array is stably immobilized on the substrate. The sensing performance for the Pt nanowire array as chemiresistor will be further discussed.