

# ZnO nanowire-embedding Schottky photodiode for UV Detection

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One-dimensional nanostructures of nanowires (NWs) and carbon nanotubes (CNTs) are potential building blocks for various application areas. CNTs having a large surface area at a fixed volume showed a sensitive performance to a NO<sub>2</sub> gas [1]. Tiny size NW has been applied in microscopy tip [2] and nanoscale interconnect [3].

Moreover, the semiconducting Nanostructure is bearing a high promise for the optoelectronics and nanoelectronics utilization. Zinc oxide (ZnO) has a large bandgap of 3.4 eV, which may satisfy the sensitive detection of ultraviolet (UV). The miniaturized ZnO NW system may realize the promise by benefiting a high sensitivity to UV illumination at a reduced power consumption.

The ZnO NW-embedding photodiodes were fabricated, which has been achieved by tuning the work function difference between the ZnO nanowire and metals. The ZnO NW photodiode showed a rectifying current flow and provided a high sensitivity to UV light at 254 nm.

It discusses the fabrication of the ZnO NW-embedding Schottky photodiode including the mechanism of high sensitive UV detection.

## References

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