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[\[NanoMaterial\] NCHU Develops VOx Nano-Devices Detecting and Memorizing Gas State](#)[NanoMaterial] NCHU Develops VOx Nano-Devices Detecting and Memorizing Gas State ([Chinese Version](#))

NCHU News (2011/05/24) The laboratory led by Associate Professor Watson KUO at the Department of Physics, National Chung Hsing University, uses the nanomaterial VOx (vanadium oxide) to develop nano electronic devices and discovers that such a material possesses a unique conductivity. VOx is very sensitive to gas state and hence very potential to develop “electronic nose” in the future for gas monitoring. The findings are published in Nanotechnology and selected as one of the significant reports in the issue.

Professor Watson KUO points out, VOx has nano-scale layered structure so that the material can adsorb the air easily. Besides, such a material possesses rich electrochemical characteristics. The ion valence of vanadium varies in accordance with the air adsorption. Once the air is adsorbed, the material will catch electrons from the gas molecules or transport electrons to the gas molecules. The gas state will also change its electrical resistance. Therefore, the material is very suitable for developing gas monitors.

Besides, VOx nano-device also possesses a memory capacity. After the adsorbed air vanishes, its electrical resistance will not change immediately, which means that the device can be used for long term gas states recording. If such a device is integrated with wireless transmitters, rendering remote monitoring possible, the technique will be able to applied to environment monitoring such as toxic gases alerts.

Reference:

[NCHU News 2011/05/24](#) (Chinese)

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[National Science Council International Cooperation Sci-Tech Newsbrief](#)

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