

Nano Cluster Devices Unveils Hydrogen Sensor Prototype

June 17 2005

A new prototype hydrogen sensor has been unveiled by Christchurch, New Zealand, based Nano Cluster Devices Ltd. Hydrogen sensors have many applications in existing industries for leak detection and process control, and could be a key enabler for the emerging 'hydrogen economy'. The global market for hydrogen sensors is already estimated to be several hundred million US dollars per annum.

Hydrogen is an explosive gas that is currently widely used in many industries, and which may become the fuel of the future, replacing fossil fuels. The only emissions from hydrogen powered cars would be water. NCD researchers believe that commercial hydrogen sensors based on their new prototypes will have many advantageous properties, for example, low cost, fast response times, high sensitivity, and low power consumption. These sensors could be used in applications as varied as:

- Detection of impending electrical power transformer failure. There are estimated to be more than 400,000 large power transformers worldwide, each worth ~US\$2million. There is currently great interest from power transmission companies in protecting their multi-billion dollar investments.
- Monitoring Hydrogen concentrations in Fuel Cells
- Leak Detection during transportation and storage of H₂
- Industrial Process Gas Monitoring
- Sensing hydrogen buildups in lead acid storage batteries (found in most vehicles).
- Detecting hydrogen leaks during ammonia, methanol manufacturing,

and desulphurization of petroleum products along with many other petrochemical applications.

“This is a major step forward for Nano Cluster Devices,” says NCD Chief Scientist Dr Simon Brown “It is a great demonstration of the usefulness of nanowire devices, and in particular the importance of NCD’s technology for producing those devices.”

NCD has patented several methods of self-assembling atomic clusters (or nanoparticles) into nanowires.

Nanotechnology is an emerging field widely seen as having as great an importance as biotechnology and information technology.

Nanotechnology will have tremendous impacts in these fields as well as in electronics, medicine and many others. NCD’s self-assembled nanowires can also be used as the key components in transistors or as interconnects between devices on silicon chips. Nanowires therefore have the potential to enable much smaller and faster computers than those possible today.

Next month NCD’s nanowire technology is being showcased to the international semiconductor industry, after selection by a panel of industry experts for the Technology Innovation Showcase (TIS). TIS will be held in conjunction with the SEMICON West conference in San Francisco in July.

[Nano Cluster Devices Ltd.](#)

Citation: Nano Cluster Devices Unveils Hydrogen Sensor Prototype (2005, June 17) retrieved 23 April 2024 from <https://phys.org/news/2005-06-nano-cluster-devices-unveils-hydrogen.html>

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