EMF type hydrogen sensor presents variety of functions

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Prospects of New Hydrogen Gas Sensor

#Goal1

Our new Hydrogen Gas Sensor has high cost performance for hydrogen utility systems for instance, *fuel cell, vehicle, hydrogen gas station*, and so on.



#Goal2

Aerospace industries is looking for fast acting and reliable H₂ sensor. This principle can be made available for the industry.



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AUKON

A new type hydrogen gas sensor



Features of New Hydrogen Gas Sensor

Hydrogen gas sensor to detect hydrogen gas leakage in air or gases selectively at once, within 100mill-seconds.

1.Response speed :

Extremely high

Very high

- 2. Sensitivity, reliability :
- 3. Selectivity of H₂ gas :
- Pick up only hydrogen





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Response Speed

Sensitive in Low Concentration: High Detection Accuracy



Selectivity of H₂ Gas

<Example>





Sensing principle: concept



nizaton

New Infrastructure Services in the Hydrogen Energy System





Sensing tape for hydrogen leakage gas

Demonstration



Sensing system for hydrogen storage sensor





"New hydrogen sensor" from Niigata University

Minister of MEXT Japan Prize By the progress of the cooperation activity between industry, academy and government



"Niigata Nippo" News paper





時、 起電させておき、水	製品は、制御回路など
系ガスを検知すると電位	設計・開発のテクノリン
空変化が生じて〇・一秒	ク(新津市)がベンチャ
以内に、警報ブザーを発	ー企業を設立して製造。
うる。検知装置はチップ	半導体や通信機器など販
化して五写以下でも作製	売の風間電機與薬(新潟
C-2010°	市)が販売する。
従来型センサーは、基	テクノリンクによる
単ガスの熱量と比較し	と、二〇〇五年度末まで
に上で対象ガスの 種類	に数百個のサンプルをつ
や量を測定、数十秒か	くり、国内外二十一三十
三一分程度かけて判断す	社に試用してもらう針
のシステム。 新開発し	画。価格は従来品よりも
ルセンサーは、これに	やや割高の二十万一三十
エベ検知速度の 大幅な高	万円程度の見込みだが、
盛化や小型化が可能にな	量産化などで抑えてい
Q°	V°.
今年二月に国内特許を	資源エネルギー庁によ
山順、来年早々にも国際	ると、水素ガスセンサー
付許を出願する。	の市場規模は二〇一〇年
	で国内では七億一二十億
新大の原田教授が開発し	円、世界では百四十億一
に水素ガスセンサーの試	五百億円と予想されてい
品	Ngo .



Our Hydrogen Sensor was selected World BEST 100 Innovations

AUTM2007

"The Better World Report Part Two Technology Transfer Works: 100 Innovations from Academic Research to Real-World Application"





Machinery Medical





University Professor Develops Promising Hydrogen Sensor Technology

Niigata University

Some of the best inventions are the ones that are the least expected. Just ask Shuji Harada, Ph.D., a professor in the Institute of Science and Technology at Niigata University in Niigata, Japan.

Harada has focused much of his research on metal-hydrogen systems, an increasingly important field relating to energy storage (think rechargeable nickel metal hydrate, or NiMH batteries) and hydrogen fuel storage cell development. Several years ago, one of his students suggested that he purchase a hydrogen sensor for his laboratory, but at the time, Harada could not afford it. So, he took it upon himself to develop one himself, using funds from his annual research budget along with grant money from the Japanese government.

The end result was an extremely small, simple yet versatile hydrogen sensor device. It had an extraordinarily quick response speed within nanoseconds — and was highly selective, picking up only hydrogen, and not other gases. It also was very sensitive, able to trace miniscule amounts of hydrogen in the air. And finally, it required no external power source.

Having created this marvelous device for use in his student's lab, it dawned on the professor that it could be used to detect hydrogen gas leaks in a variety of other settings, for example, the chemical and power generation industries, the space industry, and potentially in the future fuel cell vehicle market. With this in mind, Harada patented the device, and plans are under way to develop a business that will manufacture and market these hydrogen sensors in the future.

Harada received significant royalties from a three-year licensing agreement arranged through the Niigata Licensing Organization. Yet he donated all of the royalty money to Niigata University, so that the funds could be used to support younger researchers engaged in related fields of research. In recognition of his outstanding invention, Harada received an award from Japan's Ministry of Education, Culture, Sports, Science and Technology in June 2006.

Harada's devices may one day help protect, and perhaps even save the lives, of those who may be exposed to the dangers of hydrogen gas leaks in their daily work.

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Technology Licensing Organizaton

THE BETTER WORLD REPORT PART TWO





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