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## Tiny data storage crystals net award for NUS duo

**Device helps computers perform better; pair win award under NUS nanotech initiative launched officially yesterday**

**By Teh Joo Lin**

AFTER three years, two researchers here have come up with a data storage device consisting of germanium crystals that are 100,000 times smaller than the diameter of a human hair.

Using these tiny crystals, or nanocrystals, as storage elements in a computer's memory allows for better performance and reliability.

The device has attracted commercial interest, with Chartered Semiconductor applying for patents in the United States, Europe and Japan with the two researchers.



For their feat, Dr Choi Wee Kiong and Dr Chim Wai Kin of the National University of Singapore (NUS) department of electrical and computer engineering, received the Research Achievement Award from Acting Education Minister Tharman Shanmugaratnam yesterday.

This is the first award under the NUS Nanoscience and Nanotechnology Initiative which was launched officially yesterday.

Nanotechnology, the science of very small objects, is the next big thing. By manipulating individual atoms, researchers can create new materials such as wrinkle- and stain-resistant cotton fabrics and food packaging that keeps meat fresh for longer.

In medicine, surgeons will be able to perform operations more precisely than with the sharpest scalpel.

'The nano area is one of the next big waves in science,' Mr Tharman said, citing US government estimates that the nanotech industry is expected to be worth US\$1 trillion (S\$1.7 trillion) by 2012.

Worldwide, US\$3 billion of state funding went into nano-based R&D last year.

In the US alone, more than US\$2 billion has been set aside for this since 2000.

**Award winners Dr Chim (left) and Dr Choi, together with Chartered Semiconductor, have applied for patents in the US, Japan and Europe. -- THE BUSINESS TIMES**

Companies here are already in the field.

NanoMaterials Technology, in which the Economic Development Board has a stake, produces nanopowders for industry and also has operations in China.

Semiconductor giant ST Microelectronics is also starting a nanotechnology research centre here, Mr Tharman said.

Through the new initiative, NUS can contribute to Singapore's efforts in developing nanotechnology as an engine of growth, said NUS president Shih Choon Fong.

NUS starts a new master's programme in nano-engineering next month to meet the growing need for postgraduate expertise in this field.

Six patents have been filed since the initiative was set up more than two years ago.

In all, 22 nano laboratories have been established on campus, mainly in the engineering and science faculties.

So far, the Government has poured more than \$15.5 million into the initiative.

One of these breakthroughs comes in the field of spintronics, where researchers are working on a device that will make electronic products work up to 1,000 times faster, but on much less power.

Singapore is well-placed to be at the cutting edge of the nano field as it is a high-value manufacturing and research centre, said Mr Tharman.

It has strong protection for intellectual property, high transparency and security, he said. And students here score among the highest in the world in mathematics and science, he added. -- Additional reporting by Jessica Lim