

# Scientists develop self-cleaning 'flakes' to treat water

BY TANIA TAN

USING a combination of ultraviolet (UV) light and filters with atomic-sized pores, researchers here have produced what could be the next big thing in water treatment – self-cleaning membranes.

Jointly developed by scientists at the Nanyang Technological University School of Civil and Environmental Engineering and Stanford University, the technology saves almost 90 per cent of the energy used in conventional water treatment methods.

The novel material, which took more than nine years to develop, was unveiled by team leader Asso-

ciate Professor Darren Sun yesterday at the annual International Water Association Leading Edge Conference.

Resembling white flakes suspended in solution, the material, made up of nanofibers, will "stick" to existing water treatment membranes, where it attracts impurities in raw water.

With its atomic sized nano pores, water is ultra-filtered before going on to further treatment, he explained.

But more than just a filter, the material is also a reactor, he said.

When UV light is passed over it, the film acts as a catalyst, destroying contaminants on its surface.

These are then released as carbon dioxide and other harmless mineral products.

"It's self-cleaning." Public Utilities Board (PUB) spokesman Yap Kheng Guan said: "This technology could be just what the industry needs."

He noted that expensive chemicals and frequent maintenance make keeping membranes clean a constant challenge.

Pilot testing for the project will begin in a PUB water treatment plant in Choa Chu Kang within the next six weeks and will run for two years.

But if the results are "promising", the testing time could be shorter, said Mr Yap.

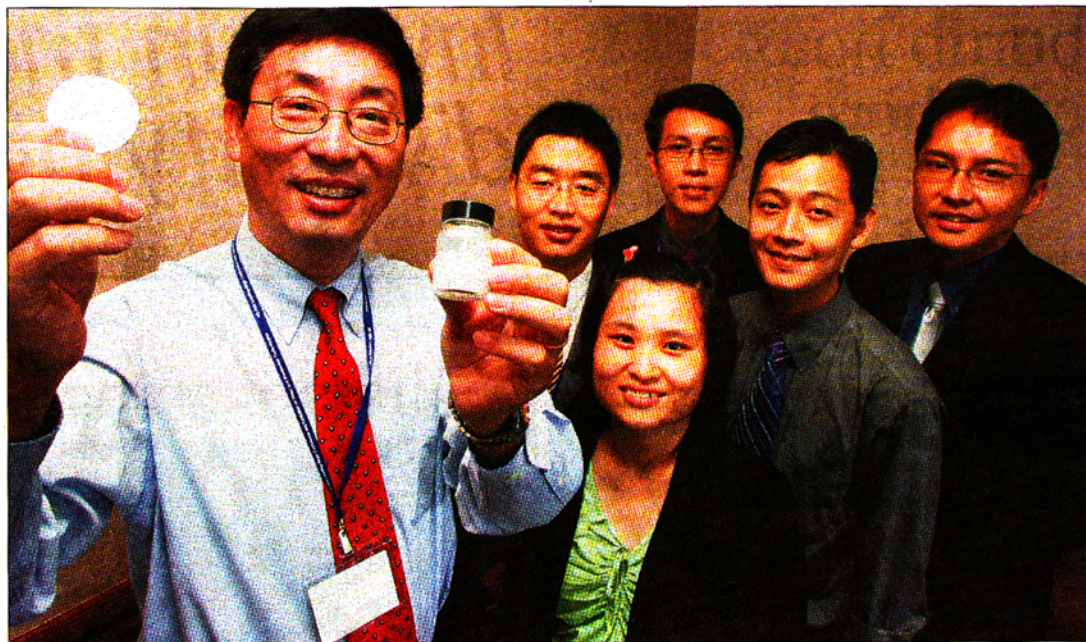


PHOTO: LIANHE ZAOBAO

**GROUNDBREAKING:** Prof Sun (left) and his team spent over nine years developing the technology. Nanofibers suspended in a solution help make water purification more efficient, while an experimental ceramic membrane (left) could cut cost.