

## **Nanotechnology could make lanterns out of flickering fluoro**

By Richard Macey  
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Half a century after the fluorescent tube revolutionised indoor lighting, scientists have come up with another bright idea.

A decade from now it may make the flickering tube as obsolete as the gas lamp.

Researchers at the University of Technology Sydney won't say exactly how it works.

"It's a secret," said Geoff Smith, a professor of applied physics and nanotechnology. The commercial potential is just too big.

Working with a Queensland company, Poly Optics, they have used nanotechnology - the science of particles as small as a billionth of a metre - to develop an energy efficient "light pipe".

That is a solid but flexible plastic rod, potentially metres long, that glows.

Fluorescent lights shine by electrically exciting gas inside a glass cylinder. The new invention, called Supersidelight, pipes light from tiny light-emitting diodes (LEDs) - similar to the coloured ones in televisions, computers, stereo systems and cars - through the "light pipe".

Scientists have been able to make the LED light turn to radiate outwards, producing an even glow. But, the technology is probably 10 years away from illuminating office workers, Professor Smith said.

"It's already much better than an ordinary incandescent globe, but not quite as good as a fluorescent light."

The lights, along with other nanotechnology ideas, will be featured in a model nanotechnology house to be unveiled at the Asia Pacific Nanotechnology Forum, which opens in Cairns on Wednesday.

The light technology will initially be used for safety, such as illuminating stairwells. Because LEDs require little power, emergency lights in office blocks could be powered for hours by a battery.

The scientists have already installed safety lighting at one Sydney home. They let the lights burn day and night because the cost of electricity used, about \$1 a year, was outweighed by the price of installing an off switch.

Other major uses will include night lights, advertising signs and illuminating shop refrigerators.

Portable solar-powered models could be used as electronic "candles" by villagers in developing countries or as search-and-rescue aids.

Because LEDs can be coloured, it could provide "mood lighting". Professor Smith said that because the lights can be made in any shape, even flat, they could be installed over walls.

And because LEDs last so long, the lights could burn for 10 years without being replaced.

Professor Smith said the lights could be made as thin as one millimetre.