

Tiny particles make LED light more pleasing

May 5 2009, By PETER SVENSSON , AP Technology Writer



An Array PAR30 LED lamp from Nexxus Lighting is shown at Lightfair International trade show Tuesday, May 5, 2009 in New York. The \$100 lamp, which contains 120 light emitting diodes, uses less than 8 watts of energy and produces the equivalent light of a 75 watt incandescent bulb. (AP Photo/Mark Lennihan)

(AP) -- Light-emitting diodes are prime candidates for replacing inefficient incandescent bulbs, but have a few things working against them. They can provide a pleasing warm light or they can be energy-efficient, but they haven't been able to be both at the same time.

On Tuesday, two small companies showed off an LED lamp that's both very power-efficient and produces a light similar to that of a standard tungsten or halogen bulb.

The LEDs in the lamp shine through a thin layer of "[quantum dots](#)," a scattering of particles of very small but precisely controlled size. When light hits them, they emit light of a different color, much like the "phosphor" layer of a fluorescent tube. The magic of quantum dots is that the color they emit can be controlled very accurately by adjusting their size, which means less wasted energy and more pleasing color.

The dots are so small that more than 10,000 of them could be lined up over the width of a human hair.

The Quantum Light lamp is made by Nexxus Lighting Inc. of Charlotte, N.C., which demonstrated it at the Light Fair trade show in New York. The lamp will go on sale late this year at an as yet undetermined price. Nexxus already sells a version of it that lacks quantum dots, yielding a bluer, harsher light, for around \$100.

The more pleasing light produced by quantum dots could allow LEDs to outshine compact fluorescent bulbs, which are energy-efficient but have taken time to win over consumers, said Bill Blackley, vice president at Nexxus.

"A hundred years, incandescents have been around. That's what people want," Blackley said.

Given the high price of LED lights, the main use for them so far has been in commercial applications, like restaurants and hotels, where the longevity of the lamps makes up for their purchase cost. Nexxus says the lamps last up to 25 times longer than halogen alternatives.

The layer of quantum dots in the lamp are the first commercial product of QD Vision Inc., a Massachusetts Institute of Technology spinoff based in Watertown, Mass. It hopes to spread their use to many other applications, including TV backlights, where they could improve

brightness and color saturation.

Quantum dots have shown up in an [LED](#) lighting product before - in strings of colored Christmas lights launched last year by QD Vision competitor Evident Technologies Inc. of Troy, N.Y.

On the Net:

<http://www.nexuslighting.com>

<http://www.qdvision.com>

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