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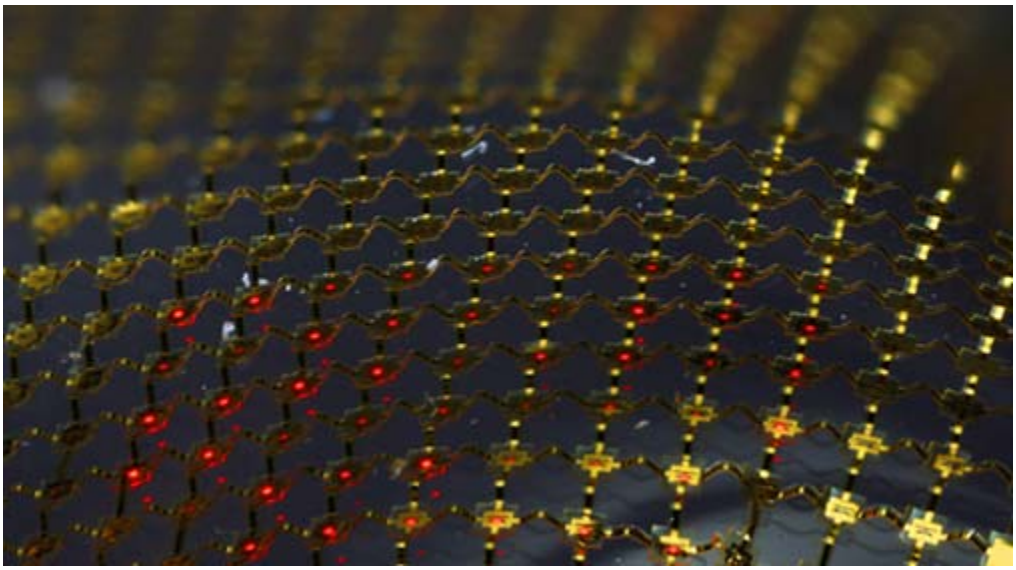
New LED tech promises more flexible displays

by Lance Whitney

A new LED display process could change the way you watch TV, monitor your health, and gaze out of windows.

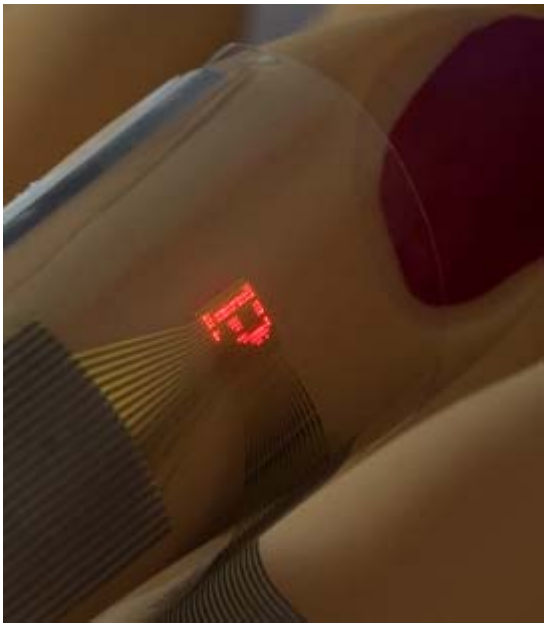
Developed by a team of international researchers, the new process creates tiny, ultrathin inorganic light-emitting diodes (LEDs) that shine brighter and last longer than conventional LEDs.



Stretchable micro-LED display, consisting of an interconnected mesh of printed micro LEDs bonded to a rubber substrate.
(Credit: Photo by D. Stevenson and C. Conway, Beckman Institute, University of Illinois)

John Rogers, professor of Materials Science and Engineering at the University of Illinois, teamed up with experts at Northwestern University, the Institute of High Performance Computing in Singapore, and Tsinghua University in Beijing to create the

new process, as described in **a news story** published Thursday by the University of Illinois and in the journal **Science**.



Micro_LED display printed on a thin sheet of plastic, wrapped around a finger. (Credit: Photo by D. Stevenson and C. Conway, Beckman Institute, University of Illinois)

Inorganic LEDs are bright and long-lasting, but they're costly, thick, and difficult to manufacture. Organic LEDs are cheaper and easier to make, thinner, and can be applied to flexible surfaces. The new process combines the best of both worlds.

"Our goal is to marry some of the advantages of inorganic LED technology with the scalability, ease of processing and resolution of organic LEDs," said Rogers. "By printing large arrays of ultrathin, ultrasmall inorganic LEDs and interconnecting them using thin-film processing, we can create general lighting and high-resolution display systems that otherwise could not be built with the conventional ways that inorganic LEDs are made, manipulated, and assembled."

The technology could pave the way for TV screens that you roll up and brake light indicators that fit the contour of your car.

One especially promising use for flexible LED sheets lies in the medical field. "Wrapping a stretchable sheet of tiny LEDs around the human body offers interesting opportunities in biomedicine and biotechnology," said Rogers, "including applications in health monitoring, diagnostics, and imaging."

Lance Whitney wears a few different technology hats--journalist, Web developer, and software trainer. He's a contributing editor for Microsoft TechNet Magazine and writes for other computer publications and Web sites. You can follow Lance on Twitter at @lancewhit. Lance is a member of the CNET Blog Network, and he is not an employee of CNET.