

# Researcher develops cheaper, better LED technology

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A Florida State University engineering professor has developed a new highly efficient and low cost light emitting diode that could help spur more widespread adoption of the technology.

"It can potentially revolutionize lighting [technology](#)," said Assistant Professor of Industrial and Manufacturing Engineering Zhibin Yu. "In

general, the cost of LED lighting has been a big concern thus far. Energy savings have not balanced out high costs. This could change that."

Yu developed this new LED technology using a combination of organic and inorganic materials. The material, which dissolve and can be applied like paint, shines a blue, green or red light and can be used to make a light bulb.

But what makes it really special is that it's far simpler to manufacture than existing products on the market.

Most LED materials require engineers to put four or five layers of material on top of each other to create the desired product or effect. Yu's material only requires one layer.

"In the future, to do manufacturing, it's a big challenge if you have to deal with multiple layers," he said.

His research has resulted in an award by the National Science Foundation to further investigate the essential materials and establish the processing platform for the development of intrinsically stretchable, active-matrix organic LED displays.

The discovery was reported in the journal *Advanced Materials*.

The research is crucial to the development of LED technology, which is fast becoming an avenue to reduce the country's electric consumption. LED lighting is already sold in stores, but widespread adoption has been slow because of the costs associated with the material and the quality.

But, LED lights do save energy.

According to the U.S. Department of Energy, residential LED lighting

uses at least 75 percent less [energy](#) than regular incandescent lighting.

Yu came to FSU by way of the Energy and Materials Strategic Faculty Hiring Initiative. He is a researcher at the FSU's High-Performance Materials Institute (HPMI), a multidisciplinary research institute dedicated to the research and development of advanced [materials](#) and manufacturing technologies.

"HPMI has really benefitted from Dr. Yu's diligent work, as well as the other top researchers who have joined FSU as part of the Energy and Materials Strategic Hiring Initiative," said Richard Liang, director of the High-Performance Materials Institute.

Provided by Florida State University

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