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Austrian researchers have developed a polymer sheet that uses fluorescent particles to capture incoming light.

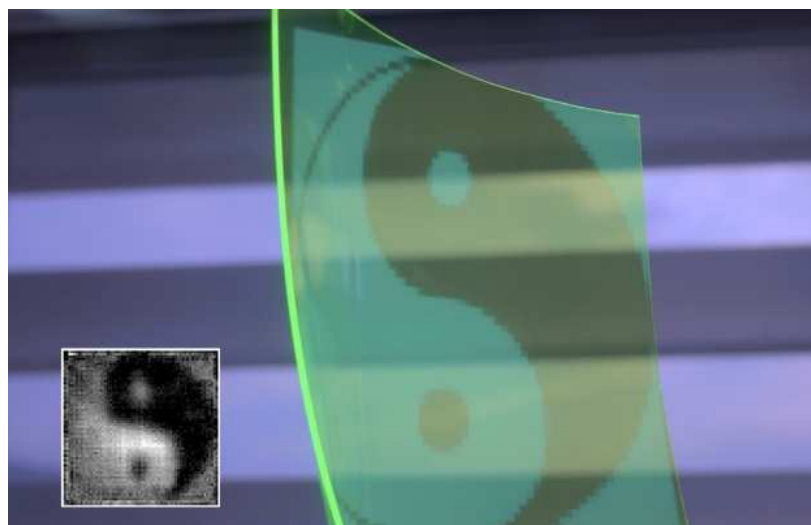
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Emma Hutchings on February 25, 2013.

An Austrian research team has developed a new way of capturing images based on a flexible and transparent polymer sheet. In a paper published in The Optical Society's open-access journal [Optics Express](#), the team describes the imager, which uses fluorescent particles to capture incoming light.

A portion of it is channelled to an array of sensors framing the sheet. With no electronics or internal components, the imager's elegant design makes it ideal for a new breed of imaging technologies, including user interface devices that can respond to a simple gesture.



The sensor is based on a polymer film known as a luminescent concentrator, and for it to work, the team had to determine precisely where light was falling across its entire surface. They did this by measuring how much light arrived from every direction at each position on the image sensor at the film's edge.

They could then reconstruct images by using a technique similar to CT scans. The resolution from the image sensor is currently low but the team can enhance it by reconstructing multiple images at different positions on the film.

The main application they envision for the technology is touch-free, transparent user interfaces that could seamlessly overlay a TV or other display. This would give computer users and gamers full gesture control without the need for cameras or other external motion-tracking devices. As the material is transparent, multiple layers that fluoresce at different wavelengths could be used to capture color images.

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