

"Long before it's in the papers"

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# "Invisibility cloak" said to be the first to work with visible light

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Courtesy of the American Chemical Society and World Science staff

For the first time, scientists have devised an "invisibility cloak" that hides objects from detection using light visible to humans, scientists say.

Though it only works for microscopic objects, the new device is a leap forward for a technology still in its "infancy," according to a report in the American Chemical Society research journal *Nano Letters*.

"This work makes actual invisibility for the light seen by the human eye possible," added the authors, Xiang Zhang of the University of California, Berkeley and colleagues, who developed the device.

The device is designed like a tiny carpet, smooth as a mirror, to be laid over an object. Once in place, the bump created by the hidden object vanishes because patterns etched into the material are designed to deflect light in the right way to make this happen.

Once a staple of science fiction only, "invisibility cloaks" are designed to route light waves around an object so that an unsuspecting viewer can't see it. Most cloaks developed so far are experimental devices made of materials that can only hide things using microwave or infrared waves, types of light that are not visible to humans anyway.

To remedy this, Zhang and colleagues built a reflective "carpet cloak" out of layers of silicon oxide and silicon nitride etched in a special pattern. Although the study cloaked a microscopic object roughly the width of a red blood cell, the device demonstrates that it may be "capable of cloaking any object underneath a reflective carpet layer," the scientists wrote.