Scientists close to Potter-style 'invisibility cloak'

Scientists say they have finally come up with a workable design for an invisibility cloak.

Physicists figured out the complex mathematical equations for making objects invisible by bending light around them last year.

Now a group of engineers at Purdue University in Indiana have used those calculations to design a relatively simple device that ought to be able to - one day soon - make objects as big as an aero plane simply disappear.

The design calls for tiny metal needles to be fitted into a hairbrush-shaped cone at angles and lengths that would force light to pass around the cloak. This would make everything inside the cone appear to vanish because the light would no longer reflect off it.

"It looks pretty much like fiction, I do realise, but it's completely in agreement with the laws of physics," said lead researcher Vladimir Shalaev, a professor of electrical and computer engineering at Purdue.

"Ideally, if we make it real it would work exactly like Harry Potter's invisibility cloak," he said. "It's not going to be heavy because there's going to be very little metal in it."

The still-theoretical design will be published this month in the journal Nature Photonics.

Professor Shalaev says he needs to secure funding to build the device and expects it would take two to three years to come up with a working prototype.

The major limitation is that the current design can only bend the light of a single wave-length at a time, and does not work with the entire frequency range of the visible spectrum.

"How to create a design that works for all colours of visible light at the same time will be a big technical challenge, but we believe it's possible," Professor Shalaev said. "In principle, it's doable."

Even blocking a single frequency can lead to useful applications, he added.

The cloak could shield soldiers from night-vision goggles which use only one wavelength of light. It could also be used to hide objects from "laser designators" used by the military to illuminate a target.

-AFP
Scientists close to Potter-style 'invisibility cloak'. 06/04/2007. ABC News Online

http://www.abc.net.au/news/newsitems/200704/s1891596.htm