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Invisibility Is No Longer Just Science Fiction

In a recent presentation that I gave titled “From Science Fiction to Reality” I asked my audience to identify, from a PowerPoint Slide list of science fiction predictions, which technology still doesn’t exist. Everyone quickly identified invisibility. My next slide showed a video clip of the Harry Potter cloak and I could see the disbelief on their faces when I told them that the technology had now been achieved.

Before we can explore invisibility technology, a basic understanding of how we see objects is needed. If you are in a room that contains no light whatsoever you cannot see the objects that exist in the room. We need light to see objects, and we see them because the natural or artificial light that strikes the objects is reflected back into our eyes.

The information contained in the patterns and frequencies of this reflected light is transmitted from our eyes to our brains where these signals are deciphered into three-dimensional color images. If the light that is normally reflected off an object could be redirected around the object, so the reflected light from the object never reaches our eyes, the object would become invisible.

HyperStealth Biotechnology Corp, located in British Columbia, Canada, is a major supplier of military camouflage clothing with patterns that match the natural landscapes of jungles and deserts. Their clothing is used by soldiers, law enforcement, and hunters to better blend into the natural environment of their locations. Their clothing lines do not render anything invisible.

On October 8, 2019 HyperStealth

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announced to the world that they have patented their Quantum Stealth invisibility cloaking material (Photo 1). Their Invisibility cloak that the girl in the picture is holding with



Photo 1—The invisibility cloak that the girl is holding bends the light so it moves around her body. The upper part of her body is visible only because it is not covered by the invisibility shield.

Photos courtesy HyperStealth Biotechnology Corp.

her left hand bends the light so it moves around the lower part of her body. This redirection of the light makes it look like the lower half of her body is hidden in the bushes when she is actually standing in front of the foliage seen in the picture.

It is easy to find the cloaking shield if you look at the gravel of the path in front of her. The light rays that are hitting the invisibility shield were moved completely around the girl to render the

lower half of her body invisible.

Photo 2 makes it easy for you to see the rectangular invisibility cloak which is hiding the part of the man’s body that is behind the cloak. The way he is standing behind the shield makes it look like the rest of his body is somehow behind an invisible doorway in the wall.

The HyperStealth invisibility cloak has two layers of lenticular arrays throughout its surface that require no power source to create invisibility. The cloak’s lenticular lenses work in



Photo 2 —Without the foliage background seen in Photo 1, it is easier to see the rectangular invisibility cloak. The part of the man’s body that lies behind the cloak is completely invisible.

concert to move the light that is striking it completely around objects that lie a short distance behind its surface.

The cloak is still under development; the goal is to go from its

current shield format to a flexible blanket that could easily be draped over soldiers to allow them to hide in plain sight. One can expect many military applications for this technology once manufacturing in its present format begins. HyperStealth engineers are now working on developing more flexible formats such as blankets and perhaps clothing.

I am writing this column one month after the technology has been patented and until the patent process was completed Guy Cramer, president/CEO of HyperStealth, my contact for this column, and the developer of the technology couldn't risk sharing the material's fabrication process with a manufacturer. These HyperStealth videos can further your understanding as to how, and to what extent, this technology can render objects invisible:

<https://vimeo.com/367347300/ef68b94ec3>

<https://vimeo.com/371435874/c090a69fe3>

<https://vimeo.com/371440586/ae3d44bdc1>

Taking It a Step Further

1. Research how airplane stealth technology hides an airplane from radar. How does airplane stealth redirect the radar signal so it doesn't return to the sender? How is this approach different from the HyperStealth invisibility shield? In your opinion what are the similarities and differences between these two technologies?

2. Mirages occur under certain weather conditions because light moves at different speeds through hot and cooler layers of air. Research mirages and create a presentation that uses images and/or videos from the internet that shows why they occur.

3. Light also moves faster through the air than it does through water. Research online for classroom experiments that show how light slowed down by water or other liquids can change or distort what we see. All experiments must be approved by your teacher before they are performed in your classroom. ©

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