## **NEW HOLOGRAM TECH SETS 3D IN MOTION**

Marissa Cevallos, Science News

Arizona researchers have created the first 3-D hologram movie that plays almost in real time. It's the fastest known demonstration of telepresence, where a 3-D hologram depicts a scene from another location. The key to the invention is a new type of plastic that can refresh the hologram once every two seconds. While that's too slow to watch the World Series in 3-D, the researchers estimated holographic TV could be coming in seven to 10 years. It is very close to reality. Something that was science fiction is something we can do today. Holograms are created when light bounces off a sheet of material with grooves in just the right places to project an image away from the surface, like on some credit cards. The image is even <u>crisper</u> when the <u>illuminating</u> light waves march in step, as they do in a laser. The Arizona team created a quicker way to play holographic video in 2008, but with that method each frame still took four minutes to generate. Now, after two years of optimizing the plastic, they've cut the time to just two seconds. Sixteen cameras snap pictures of an object that are piped into a desktop PC, which processes the data. Then the computer shoots the holographic pixels, or "hogels," electronically to another location. There, the hogels are transformed into an optical signal and transmitted by a laser onto a plastic screen, much like a projector shines light onto a white screen to play a movie. When this light hits, the plastic screen undergoes chemical reactions that temporarily record the most recent set of images in the data stream. "Star Wars was a great movie and we got a lot of feedback because of Princess Leia. But the idea of a hologram hovering in mid-air is impossible. "You need a screen, a support to display the image."Within a few months, the Arizona team hopes to create holographic video on a tabletop, where laser light shines up from underneath a table. Before holographic devices hit living rooms, though, the holograms need to be bigger and faster. The researchers will have to upgrade their 50 hertz laser to one that operates at faster gigahertz speeds, scale up the size of the screen, and miniaturize their instrumentation."But I don't think there's any fundamental physics that would prevent us from getting there," Peyghambarian says. It's kind of like a seed finally finding its soil. It's been alone, floating there. It has a ground within to grow now."

depicts - To represent in a picture or sculpture.

estimated - a judgment of the qualities of something or somebody

grooves - a long narrow cut

crisper - a pleasing firmness and freshne

illuminating - to provide or brighten with light