

HOLOGRAPHY

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Liceo Scientifico

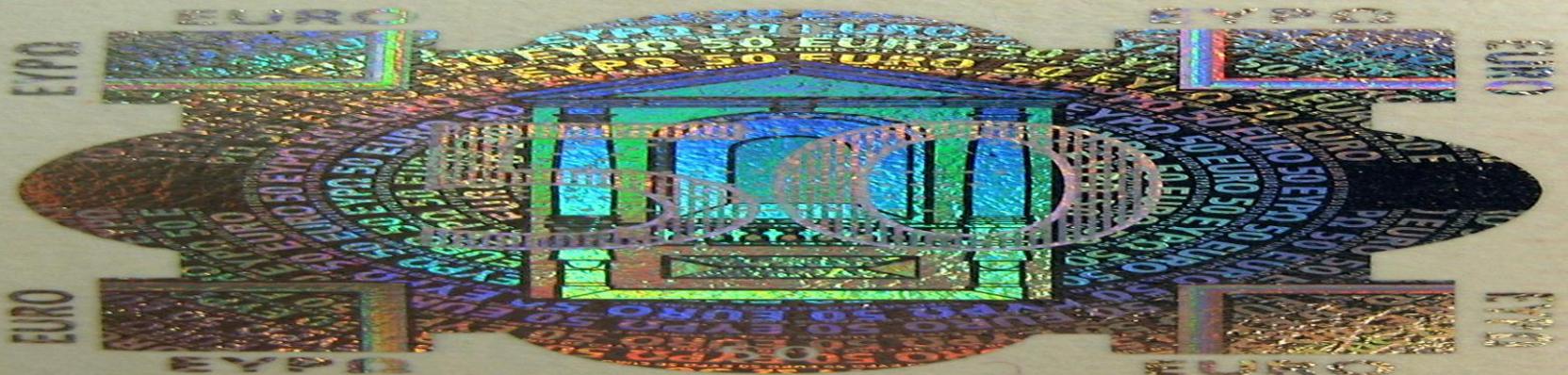
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- **Holography is an optical technology for storage of pictorial information in the form of a very fine network of interference fringes with use of coherent laser light, suitably projected; the image created by the interference fringes is characterized by an illusion of tridimensionality.**

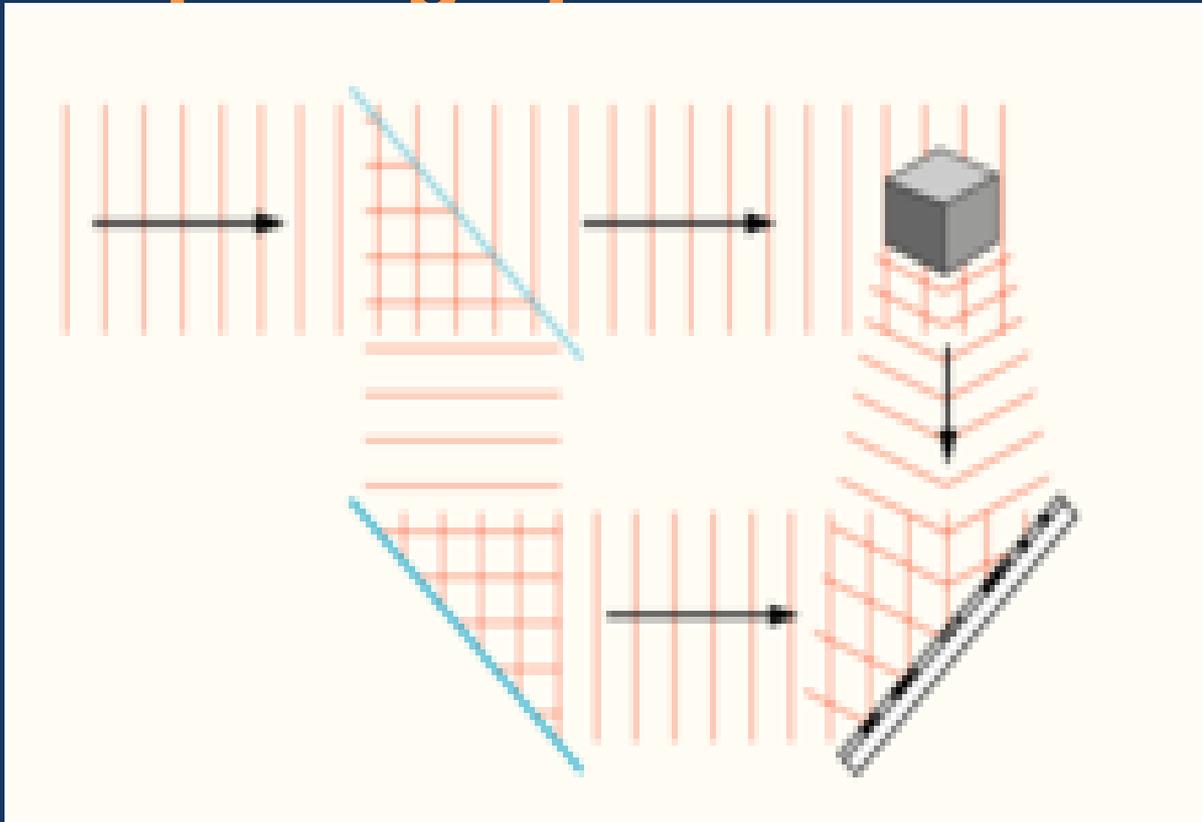


- It is more properly of parallax effect in the perception of the image, the image is perceived differently depending on the point of vision; in the case of the two eyes, each one perceives the image from a slightly different position than the other. This difference, called parallax, in normal vision determines depth perception



Principle of operation

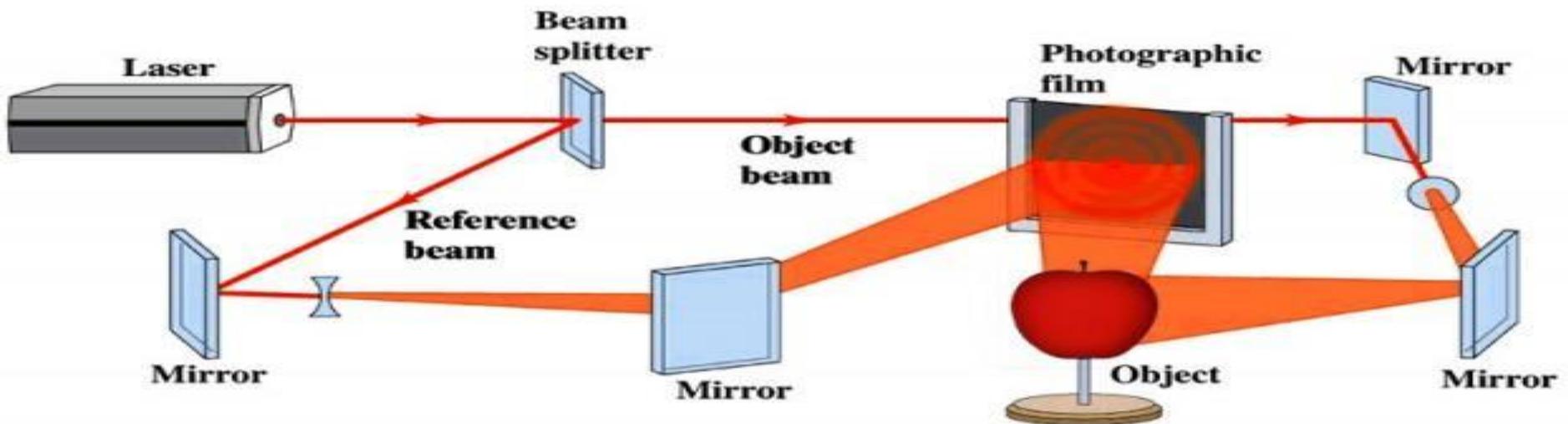
The holograms are defined as figures (or *pattern*) of the interfering waves obtained through the use of a laser. having the specificity à to create a three-dimensional photographic effect:



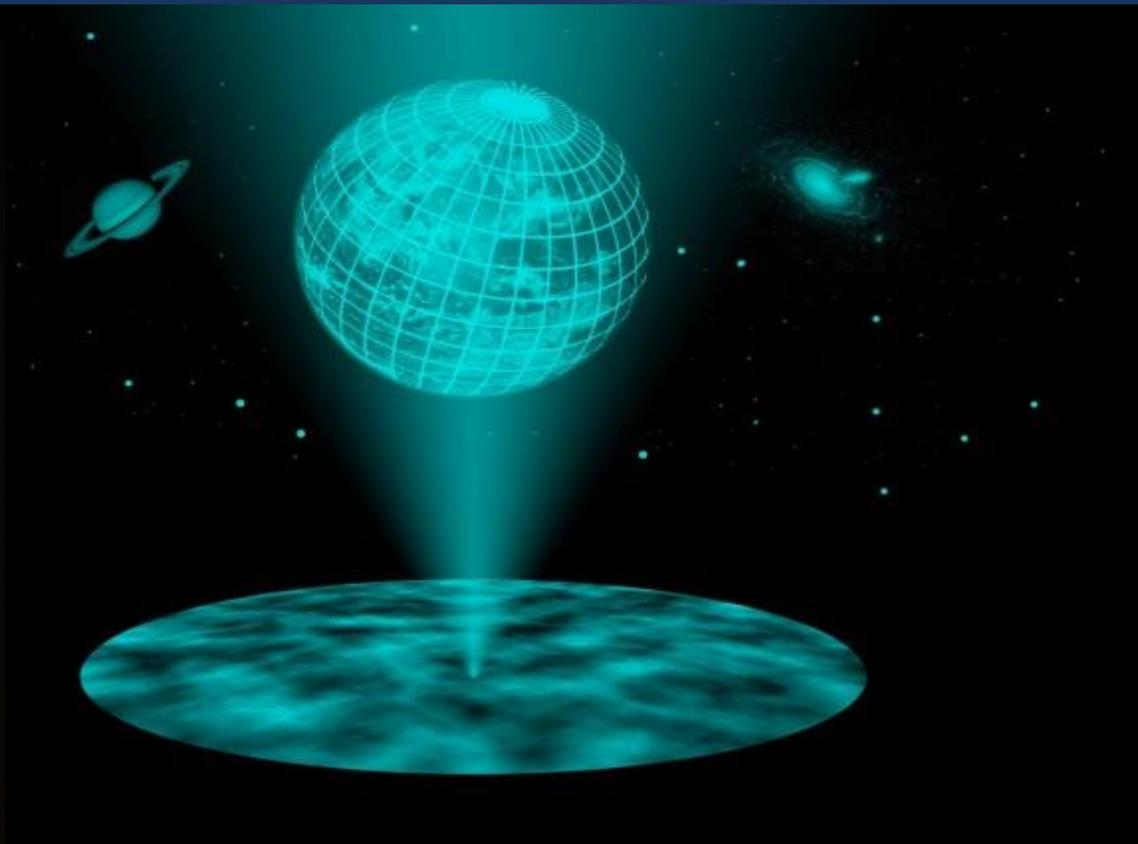
- The holographic technique is based on the optical interference phenomenon. In the recording of a hologram the light from a laser is split by a semitransparent mirror (*beam splitter*). The resulting two beams are then expanded and conveyed through special mirrors



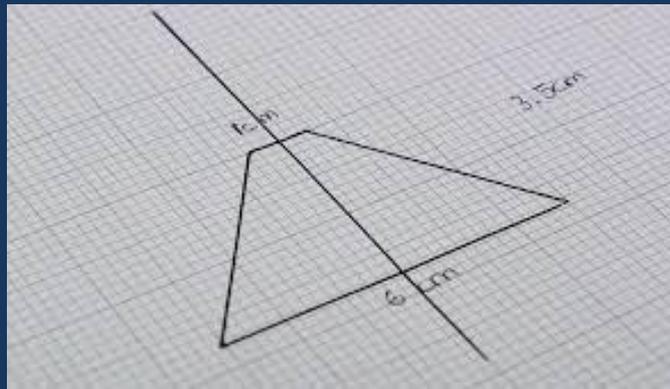
- one of them goes to illuminate the subject (in front of the object wave), while the second has a direct impact on a photographic plate (opposite the reference wave). On it the two wavefronts interfere and the recording of interference fringes is the hologram.



- From here it derives the effect of parallax typical virtual image that is seen by sighting through the holographic plate, exactly *as if* the object were seen, point by point, through a window.



- With different techniques are recorded holograms by the different properties à: hologram for transmission, in which the image is observed from the side opposite to that of the origin of the light; hologram for reflection, in which the image is observed from the same side from which the light comes.



- This is the video of the experiment showing a hologram created by shaping a sheet of plexiglass and then place on a phone that acts as a projector by activating a screensaver with animated figures

The video is at the url:

<https://www.youtube.com/watch?v=im1yqD1QGN0>