

Holography

January 25, 2021

In News

- Scientists have developed a method using **holographic imaging to detect both viruses and antibodies.**

About holographic imaging

- **Hologram**
 - A hologram is a physical structure that diffracts light into an image. The term 'hologram' can refer to both the encoded material and the resulting image.
 - It is a process that creates three-dimensional images called holograms.
- **This is done using** laser beams, the properties of interference and diffraction, light intensity recording, and illumination of the recording.
- A holographic image can be seen by looking into an illuminated holographic print or by shining a laser through a hologram and projecting the image onto a screen.
- The **Hungarian-British physicist Dennis Gabor** was awarded the **Nobel Prize in Physics in 1971** "for his invention and development of the holographic method".
- Uniqueness of holographic images:
 - The images created so change according to the relative position of the individual viewer as if the objects displayed are actually present.

Potential applications holographic imaging

- Military mapping.
- Information storage.
- Medical.
- Fraud and security: Eg- small silver rectangle of a dove

on your credit card.

- Art.

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Antibodies

- They are also called immunoglobulin. It is a Y-shaped protective protein produced by the immune system in response to the presence of a foreign substance, called an antigen.
- There are five immunoglobulin classes (isotypes) of antibody molecules found in serum: IgG, IgM, IgA, IgE and IgD and are distinguished by the type of heavy chain they contain.
- When antibodies find their target, they bind to it, which then triggers a cascade of actions that vanquish the invader. Antibodies are part of the so-called “adaptive” immune system, the arm of the immune system that learns to recognize and eliminate specific pathogens.