METAMATERIALS

Unique properties lead to amazing possibilities

Now you see it

In a fascinating development, scientists and engineers are working to create metamaterials that can manipulate light, making objects invisible or altering their appearance. These materials are made up of tiny structures that can be designed to bend light around them, enabling the creation of objects that are invisible to the naked eye.

Researchers and engineers are also exploring the potential of metamaterials to improve security systems, including cameras and other cameras, as well as improving targeting systems in military applications.

Through the looking glass

Imagine a lens that can bend light in any direction. Such a lens is now possible thanks to the groundbreaking discoveries of metamaterials. Metamaterials are artificial materials that can be designed to manipulate light in ways that are not possible with natural materials.

Researchers have found new ways to generate novel classes of devices and enable a whole range of possible applications. These metamaterials gain their unique properties from their artificially produced structure, which can be tailored to achieve specific electromagnetic properties.

In order to harness the effective electromagnetic properties of these materials, it is necessary to be able to control the physical properties of the materials on a scale that is smaller than the wavelength of light. To achieve this, researchers have developed techniques that manipulate the properties of metamaterials at the nanoscale, enabling the manipulation of light at incredibly small scales.

Fortunately, today we have rapidly improving fabrication capabilities and enhanced sub-wavelength imaging techniques that will further strengthen the development of metamaterials in the future. These metamaterials are expected to open up a whole new world of light interaction with materials that have unprecedented electromagnetic properties and functionality.