

Optical Multilayer Refractive Index Near Zero Metamaterials

This technology improves the performance of optical devices and increases the efficiency of solar panels (increased absorption of light). It does this by altering the refractive index of metal and insulating materials redirecting light from a wider range of angles.

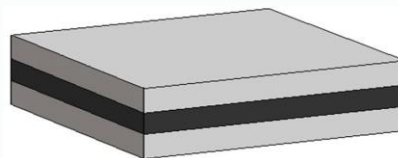
Problem

Solar panels sometimes require an active system to control the panel orientation increasing costs. Other optical sensors have their use limited by focusing and other optical characteristics. Lenses require expensive and fragile coatings on many of their elements to control aberration.

Solution

Adding metamaterials to optical sensors may improve the chance of detection of light. Solar panels can also benefit by absorbing more light when the panels are fixed. Lenses can be more robust with tougher coatings.

A multilayer structure with two layer of silver (colored light gray) and one layer of BST (dark gray) in between. This pattern is known as a MDM multilayer.



Value Proposition

Metamaterial absorbers has the potential to realize efficient optical absorption when compared to conventional absorbers which are limited to low absorption performance. This metamaterial potential is due to its electromagnetic properties.

Competitive Advantages

- Increases the light being absorbed by solar panels without an external structure
- Enhances optical devices' performance
- The technology is coating that could be applied to surfaces.

Status of Development

- Prototyping and characterization

IP Status

- Patent no- US 62/703,747
- Licensing Available

For further information regarding this Technology please contact:

Office of Technology Commercialization

1201 W. University Drive Edinburg, TX 78539

Email: otc@utrgv.edu Phone: 956-665-3032

The University of Texas
Rio Grande Valley

Office of Technology
Commercialization