Correction Of Eye Diseases With Optical Metasurfaces

Tech ID: 34103 / UC Case 2023-784-0

BRIEF DESCRIPTION

A revolutionary optical technology designed to restore peripheral vision in patients with eye diseases through the integration of optical metasurfaces on eyewear.

FULL DESCRIPTION

This technology utilizes patterned optical nanostructures, known as metasurfaces, integrated onto glasses or contact lenses to manipulate light in novel ways, significantly improving peripheral vision and offering a potential cure for certain types of blindness. This innovation aims to address the limitations of current eyewear solutions for patients with diseases like glaucoma or hemianopia, by providing a continuous field of view and enabling vision correction in all directions with a compact, ultrathin design.

SUGGESTED USES

- Medical eyewear for patients with peripheral vision loss.
- Advanced contact lenses with integrated vision correction technology.
- Augmented Reality (AR) and Virtual Reality (VR) devices for enhanced visual experience.
- Customizable vision correction solutions tailored to individual patient needs.

ADVANTAGES

- Provides a continuous field of view, eliminating gaps present in current devices.
- Enables stronger light steering at steeper angles, surpassing the limitations of prisms or mirrors.
- Features a smaller profile due to submicron scale metasurfaces, allowing for integration into ultrathin glasses and contact lenses.
- Offers customizability through various metasurface patterns to cater to individual patient needs.
- Incorporates electrical tunability for dynamic vision correction and compatibility with AR/VR technologies.

PATENT STATUS

Patent Pending

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OTHER INFORMATION

CATEGORIZED AS

- **Optics and Photonics**
  - All Optics and Photonics
- **Materials & Chemicals**
  - Nanomaterials
  - Negative Index
  - Thin Films
- **Medical**
  - Devices
  - Disease: Ophthalmology and Optometry
- **Nanotechnology**
  - Materials

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