

CLAIMS

1. An optical device of, comprising:

a partial or incomplete optic configured operatively as an add-on for an optical element or system, the partial or incomplete optic having an active area configured in relation to the optical element or system such that the partial or incomplete optic controls or changes foci of light incident upon or provided to the active area, but does not control or change foci of light bypassing optically relevant portions of the partial or incomplete optic, and

an opening that is adjacent to and/or not overlapping the active area and that encompasses a larger portion of the optical device than the active area.

2. An optical device, comprising:

a partial or incomplete optic configured operatively as an add-on for an optical element or system, the partial or incomplete optic having an active area configured in relation to the optical element or system such that the partial or incomplete optic controls or changes foci of light incident upon or provided to the active area, but does not control or change foci of light bypassing optically relevant portions of the partial or incomplete optic, the active area including edge or side portions with a surface finish applied or provided such that surface roughness at the edge or side portions has peak-valley height values of 7-15 microns to effect blocking or diffusion of light.

3. An optical device, comprising:

a partial or incomplete optic configured operatively as an add-on for an optical element or system, the partial or incomplete optic having an active area configured in relation to the optical element or system such that the partial or incomplete optic controls or changes foci of light incident upon or provided to the active area, but does not control or change foci of light bypassing optically relevant portions of the partial or incomplete optic, the active area including edge or side portions with nano-structures that have nano-tips or cones to effect blocking or diffusion of light.

4. An optical device, comprising:

a partial or incomplete optic configured operatively as an add-on for an optical element or system, the partial or incomplete optic having an active area configured in relation to the optical element or system such that the partial or incomplete optic controls or changes foci of light

incident upon or provided to the active area, but does not control or change foci of light bypassing optically relevant portions of the partial or incomplete optic, the active area including edge or side portions with nano-structures that are cone-shaped or approximately cone-shaped, the nano-structures being 100-300 nm in base diameter and 1000-16000 nm in height to effect blocking or diffusion of light.

5. An optical device, comprising:

a partial or incomplete optic configured operatively as an add-on for an optical element or system, the partial or incomplete optic having an active area configured in relation to the optical element or system such that the partial or incomplete optic controls or changes foci of light incident upon or provided to the active area, but does not control or change foci of light bypassing optically relevant portions of the partial or incomplete optic, the active area including edge or side portions with nano-structures, the nano-structures including: nano-tips, nano-arrays, aperiodic or other arrays of nano-structures, antireflection structures, biomimetic structures, or a combination or combinations thereof to effect blocking or diffusion of light.

6. An optical device, comprising:

a partial or incomplete optic configured operatively as an add-on for an optical element or system, the partial or incomplete optic having an active area configured in relation to the optical element or system such that the partial or incomplete optic controls or changes foci of light incident upon or provided to the active area, but does not control or change foci of light bypassing optically relevant portions of the partial or incomplete optic; and

an opening that is adjacent to and/or not overlapping the active area,

a circumferential ring that defines a portion of the opening, and

a haptic or support secured to and configured to provide structural support at and about an entire periphery of the circumferential ring to prevent bending of the circumferential ring adjacent to the opening when arms of the haptic or support are compressed.

7. The optical device of claim 6, wherein the partial or incomplete optic and the circumferential ring are made of a first material, and the haptic or support includes one or more periphery support/interface structures made of a second material that is harder than the first material.

8. An optical device, comprising:

a partial or incomplete optic configured operatively as an add-on for an optical element or system, the partial or incomplete optic having an active area configured in relation to the optical element or system such that the partial or incomplete optic controls or changes foci of light incident upon or provided to the active area, but does not control or change foci of light bypassing optically relevant portions of the partial or incomplete optic; and

an opening that is adjacent to and/or not overlapping the active area,

a circumferential ring that defines a portion of the opening, and

a haptic or support secured to and configured to provide structural support at periphery portions of the circumferential ring to prevent bending of the circumferential ring when arms of the haptic or support are compressed.

9. The optical device of claim 8, wherein the partial or incomplete optic and the circumferential ring are made of a first material, and the haptic or support includes periphery support/interface structures made of a second material that is harder than the first material.

10. The optical device of claim 8, wherein the haptic or support includes periphery support/interface structures that are symmetrically configured in relation to one or more boundaries of the partial or incomplete optic.

11. The optical device of claim 8, wherein the haptic or support includes periphery support/interface structures that are symmetrically configured in relation to the opening.

12. The optical device of claim 8, wherein the haptic or support includes periphery support/interface structures that are not directly connected to other periphery portions of the circumferential ring and configured such that the optical device is foldable at said other periphery portions.

13. The optical device of claim 8, wherein the haptic or support includes periphery support/interface structures that are configured at opposite sides of the optical device in relation to portions of the optical device at which the optical device is foldable.

14. The optical device of claim 8, wherein the periphery portions are at opposing sides of the circumferential ring and approximately equidistant from an axis intersecting portions of the optical device at which the optical device is foldable.

15. The optical device of claim 8, wherein the haptic or support includes periphery support/interface structures with curved end portions, and the circumferential ring includes exposed periphery portions adjacent to the curved end portions.

16. A method for enhancing vision, comprising:

providing a partial or incomplete optic as an add-on to an existing optical element or system, the partial or incomplete optic having an active area configured in relation to the existing optical element or system such that the partial or incomplete optic controls or changes foci of light incident upon or provided to the active area, but does not control or change foci of light bypassing optically relevant portions of the partial or incomplete optic, and

providing the active area with edge or side portions that block or diffuse light by applying a surface finish at the edge or side portions such that surface roughness at the edge or side portions has peak-valley height values of 7-15 microns.

17. A method for enhancing vision, comprising:

providing a partial or incomplete optic as an add-on to an existing optical element or system, the partial or incomplete optic having an active area configured in relation to the existing optical element or system such that the partial or incomplete optic controls or changes foci of light incident upon or provided to the active area, but does not control or change foci of light bypassing optically relevant portions of the partial or incomplete optic, and

providing the active area with edge or side portions that block or diffuse light by utilizing one or more of:

- a lithography technique,
- an etching technique, and
- an UV/Ozone surface technique,

to apply and/or modify one or more surface structures at the edge or side portions.

18. A method for enhancing vision, comprising:

providing a partial or incomplete optic as an add-on to an existing optical element or system, the partial or incomplete optic having an active area configured in relation to the existing optical element or system such that the partial or incomplete optic controls or changes foci of light incident upon or provided to the active area, but does not control or change foci of light bypassing optically relevant portions of the partial or incomplete optic, and

providing the active area with edge or side portions that block or diffuse light by providing nano-structures that have nano-tips or cones.

19. A method for enhancing vision, comprising:

providing a partial or incomplete optic as an add-on to an existing optical element or system, the partial or incomplete optic having an active area configured in relation to the existing optical element or system such that the partial or incomplete optic controls or changes foci of light incident upon or provided to the active area, but does not control or change foci of light bypassing optically relevant portions of the partial or incomplete optic, and

providing the active area with edge or side portions that block or diffuse light by providing nano-structures that are cone-shaped or approximately cone-shaped, the nano-structures being 100-300 nm in base diameter and 1000-16000 nm in height.

20. A method for enhancing vision, comprising:

providing a partial or incomplete optic as an add-on to an existing optical element or system, the partial or incomplete optic having an active area configured in relation to the existing optical element or system such that the partial or incomplete optic controls or changes foci of light incident upon or provided to the active area, but does not control or change foci of light bypassing optically relevant portions of the partial or incomplete optic, and

providing the active area with edge or side portions that block or diffuse light by providing nano-structures at the edge or side portions, the nano-structures including: nano-tips, nano-arrays, aperiodic or other arrays of nano-structures, antireflection structures, biomimetic structures, or a combination or combinations thereof.