

CLAIMS:

1. A device for delivering electromagnetic radiation to a limbal area of an eye, the device having a first side and a second side, and the device transforming one or more beams of electromagnetic radiation that are incident on the first side into one or more beams of the electromagnetic radiation that are emitted from the second side, wherein the one or more emitted beams are arrayed in an array selected from:
- (a) an array of two or more emitted beams that are arrayed in a cylindrical array, the cylindrical array having a circular cross section;
 - (b) an array of one or more beams each beam having a cross sectional shape of a circular arc, and
 - (c) an array comprising a beam having an annular cross section.
2. The device according to Claim 1 wherein the emitted radiation comprises two or more emitted beams that are arrayed in a cylindrical array, the cylindrical array having a circular cross section, the cross section having a diameter from 9 to 13 mm.
3. The device according to Claim 1 wherein the emitted radiation comprises an array of one or more beams having a cross sectional shape of a circular arc; the circular arc having a diameter from 9 to 13 mm.
4. The device according to Claim 1 wherein the emitted radiation comprises an array comprising a beam having an annular cross section, the annular cross section having an inner diameter and an outer diameter, the average of the inner diameter and the outer diameter being from 9 to 13 mm.
5. The device according to Claim 1 wherein the emitted radiation comprises two or more emitted beams that are arrayed in a cylindrical array, the device comprising an element opaque to the electromagnetic radiation having therein a circular array of apertures extending from a first face of the opaque element to a second face of the opaque element.
6. The device according to Claim 5 wherein the circular array of apertures comprises at least 50 apertures
7. The device according to Claim 5 or 6 wherein the circular array of apertures has a center and the opaque element is rotatable about the center of the circular array.
8. The device according to Claim 1 wherein the emitted radiation comprises an array of one or more beams having a cross sectional shape of a circular arc; the device

comprising an element opaque to the electromagnetic radiation having therein a circular array of apertures, each aperture having a cross sectional shape of a circular arc and each aperture extending from a first face of the opaque element to a second face of the opaque element.

5 9. The device according to Claim 8 wherein the circular array of apertures has a center and the opaque element is rotatable about the center of the circular array.

10. The device according to Claim 1 wherein the emitted radiation comprises two or more emitted beams that are arrayed in a cylindrical array, the device comprising a cylindrical array of optic fibers.

10 11. The device according to Claim 10 wherein the cylindrical array of optic fibers is embedded in an opaque element, and the cylindrical array of optic fibers extends from a first face of the opaque element to a second face of the opaque element.

12. The device according to Claim 1 wherein the emitted radiation comprises a beam having an annular cross section, and the device comprises a refractive or
15 diffractive optical element.

13. The device according to Claim 1 wherein the emitted radiation comprises a beam having an annular cross section, and the device comprises an ellipsoidal mirror.

14. The device according to any one of the previous claims further comprising concave a surface adjacent to the second side of the device.

20 15. An ensemble comprising two or more devices for delivering electromagnetic radiation from the first source of electromagnetic radiation to a limbal area of an eye, each of the one or more devices having a first side and a second side, and each device transforming one or more beams of electromagnetic radiation that are incident on the first side into one or more beams of the electromagnetic radiation that are emitted from
25 the second side, wherein the one or more emitted beams are arrayed in an array selected from:

(i) an array of two or more emitted beams that are arrayed in a cylindrical array, the cylindrical array having a circular cross section, wherein each of the one or more devices producing a
30 cylindrical array of emitted beams produces a cylindrical array of emitted beams having a different cross-sectional diameter;

(ii) an array of one or more beams having a cross sectional shape of a circular arc wherein each of the one or more devices

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producing emitted beams having a cross sectional shape of a circular arc produces emitted beams having a cross sectional shape of a circular arc of a different diameter ; and

- (iii) an array comprising a beam having an annular cross section, wherein each of the one or more devices producing an emitted beam having an annular cross section produces an emitted beam having an annular cross section of one or both of a different inner diameter or a different outer diameter.

10 16. A system for delivering electromagnetic radiation to a limbal area of an eye, comprising:

- (a) a first source of electromagnetic radiation; and
(b) one or more devices for delivering electromagnetic radiation from the first source of electromagnetic radiation to a limbal area of an eye the device when the first source is optically coupled to the device, each of the one or more devices having a first side and a second side, and each device transforming one or more beams of electromagnetic radiation from the first source that are incident on the first side into one or more beams of the electromagnetic radiation that are emitted from the second side, wherein the one or more emitted beams are arrayed in an array selected from:

- (i) an array of two or more emitted beams that are arrayed in a cylindrical array, the cylindrical array having a circular cross section, wherein each of the one or more devices produces a cylindrical array of emitted beams having a different cross-sectional diameter;

- (ii) an array of one or more beams having a cross sectional shape of a circular arc wherein each of the one or more devices produces emitted beams having a cross sectional shape of a circular arc of a different diameter ; and

- (iii) an array comprising a beam having an annular cross section, wherein each of the one or more devices produces emitted beams having an annular cross section of a different inner diameter or a different outer diameter.

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17. The system according to Claim 16 wherein the first source is a laser.
18. The system according to Claims 17 wherein the laser has a wavelength from 514
810 nm.
19. The system according to Claims 18 wherein the laser is a 532 Nd:YAG laser.
- 5 20. The system according to any one of Claims 16 to 19 further comprising a
processor configured to execute a predetermined regime of activation of the first source
of electromagnetic radiation.
21. The system according to Claim 20 wherein the predetermined regime of
activation of the source of electromagnetic radiation comprises a series of pulses.
- 10 22. The system according to Claim 21 wherein the pulses are between 0.1 to 3
nanoseconds in duration.
23. The system according to Claim 21 or 22 wherein the fluence of a single pulse is
from 0.84 to 10,000 J/cm².
24. The system according to any one of Claims 21 to 23 wherein the total energy
15 delivered to a single eye is from 4 to 20 J.
25. The system according to any one of Claims 16 to 24 further comprising a second
source of electromagnetic radiation that produces a visible light beam, the second
source of radiation being configured to be optically coupled to the device of the system.
26. A method for delivering electromagnetic radiation to a limbal area of an eye,
20 comprising
- (a) delivering electromagnetic radiation to the limbal area of the eye wherein
the delivered electromagnetic radiation is in the form of one or more beams,
the beams being arrayed in an array selected from:
- (i) an array of two or more emitted beams that are arrayed in a
25 cylindrical array, the cylindrical array having a circular cross
section;
- (ii) an array of one or more beams having a cross sectional shape
of a circular arc; and
- (iii) an array comprising a beam having an annular cross section.
- 30 27. The method according to Claim 26 for use in the treatment of glaucoma.

CLAIMS

1. An invention not claimed in any divisional application.