

WHAT IS CLAIMED IS:

1. An accommodating intraocular lens (AIOL) adapted for implantation in a posterior chamber of an eye, comprising

an optic configured to produce a trapezoidal phase shift that causes a linear change in the phase shift imparted to incoming light as a function of pupil radius;

a plurality of haptics, each haptic extending from a haptic-optic junction to at least one transverse arm contacting a capsular bag of the eye and each haptic having sufficient length and rigidity to stretch a capsular bag of the eye to contact ciliary muscles of the eye;

wherein the haptic-optic junctions vault the optic forward relative to the haptics and compression of the haptics by the ciliary muscles exerts a forward force at the optic of at least 1.5 mN and wherein the trapezoidal phase shift augments a visual effect of the forward force to produce a combined effective power change of at least 0.75 Diopters such that different effective depths of focus are provided for different distances and pupil sizes as a result of changes in light conditions.

2. The AIOL of Claim 1, wherein at least two of the haptics extend along a diameter of the optic and a distance between the transverse arms of the haptics along the diameter is between 9.5 and 11.5 mm.

3. The AIOL of Claim 2, wherein the distance between the transverse arms along the diameter is at least 10 mm.

4. The AIOL of Claim 1, wherein a vault angle of the haptic-optic junctions is at least 5 degrees.

5. The AIOL of Claim 1, wherein the forward force at the optic is at least 1.5 mN when the haptics are compressed inwardly by 0.5 mm.

6. The AIOL of Claim 1, wherein the transverse arms of the haptics extend from a substantially square elbow.

7. The AIOL of Claim 1, wherein each haptics comprises two transverse arms.

8. The AIOL of Claim 1 , wherein the AIOL is a single-piece AIOL formed from a material having a Young's modulus of 0.8 to 3 MPa.

9. The AIOL of Claim 1 , further comprising a capsular ring around the haptics, the capsular ring having collapsible sections allowing the capsular ring to conform to the capsular bag as the capsular bag is stretched by the haptics.

10. ~~The AIOL of Claim 1 , wherein the optic is adapted to produce a trapezoidal phase shift.~~

41-10. An accommodating intraocular lens (IOL) system, comprising:

an anterior accommodating IOL comprising a positive power anterior optic configured to produce a trapezoidal phase shift that causes a linear change in the phase shift imparted to incoming light as a function of pupil radius and a plurality of anterior haptics on opposite sides of the optic along a haptic diameter, each anterior haptic extending along the haptic diameter from a haptic-optic junction to at least one transverse arm contacting a capsular bag of the eye and each anterior haptic having sufficient length and rigidity to stretch a capsular bag of the eye to contact ciliary muscles of the eye, wherein the haptic-optic junctions vault the optic forward relative to the anterior haptics and compression of the anterior haptics by the ciliary muscles moves the anterior optic forward; and

a posterior IOL comprising a posterior optic and posterior haptics, the posterior haptics extending in a radial direction generally perpendicular to the haptic diameter, wherein the posterior haptics are compressed when the capsular bag is stretched by the anterior haptics and the compression of the posterior haptics forces the posterior optic forward;

wherein the positive power anterior optic having the trapezoidal phase shift and the posterior optic augment produce a combined effective power change of at least 0.75 Diopters such that different effective depths of focus are provided for different distances and pupil sizes as a result of changes in light conditions.

4211. The accommodating IOL system of Claim 10, wherein the posterior optic is a negative power optic.

43. — The accommodating IOL system of Claim 1, wherein the anterior optic is adapted to produce a trapezoidal phase shift.

4412. ~~The accommodating IOL system of Claim 1;~~ An accommodating intraocular lens (IOL) system, comprising:

an anterior accommodating IOL comprising a positive power anterior optic and a plurality of anterior haptics on opposite sides of the optic along a haptic diameter, each anterior haptic extending along the haptic diameter from a haptic-optic junction to at least one transverse arm contacting a capsular bag of the eye and each anterior haptic having sufficient length and rigidity to stretch a capsular bag of

the eye to contact ciliary muscles of the eye, wherein the haptic-optic junctions vault the optic forward relative to the anterior haptics and compression of the anterior haptics by the ciliary muscles moves the anterior optic forward; and
a posterior IOL comprising a posterior optic and posterior haptics, the posterior haptics extending in a radial direction generally perpendicular to the haptic diameter, wherein the posterior haptics are compressed when the capsular bag is stretched by the anterior haptics and the compression of the posterior haptics forces the posterior optic forward, wherein the posterior optic further comprises a plurality of protrusions around an anterior surface of the posterior optic, the protrusions extending to an anterior side of the capsular bag.

4513. The accommodating IOL system of Claim 10, wherein the vault angle of the haptic-optic junctions is at least 5 degrees.

~~4614~~. An accommodating intraocular lens (AIOL) comprising:

an optic adapted to produce a trapezoidal phase shift that causes a linear change in the phase shift imparted to incoming light as a function of pupil radius; and

a plurality of haptics, each haptic extending from a haptic-optic junction to at least one transverse arm contacting a capsular bag of the eye and each haptic having sufficient length and rigidity to stretch a capsular bag of the eye to contact ciliary muscles of the eye, wherein the haptic-optic junctions vault the optic forward relative to the haptics and compression of the haptics by the ciliary muscles moves the anterior optic forward, and wherein a combined accommodative power produced by the motion of the anterior optic and the trapezoidal phase shift augments a visual effect of the forward force to produce a combined effective power change of is at least 0.5 Diopters such that different effective depths of focus are provided for different distances and pupil sizes as a result of changes in light conditions.

~~4715~~. The AIOL of Claim ~~4614~~, wherein the combined accommodative power is at least 1.0 Diopters.

~~4816~~. The AIOL of Claim ~~4614~~, wherein the anterior optic moves forward at least 0.3 mm when the haptics are compressed by the ciliary muscles.