CLAIMS

1. An ocular lens, comprising:

a lens body configured to contact an eye, the lens body including an optic zone shaped to direct central light towards a central focal point of a central region of a retina of the eye when disposed relative to the eye; and

an at least one optic feature of the lens body that directs peripheral light into the eye away from the central region of the retina when disposed relative to the eye, wherein the optic feature is semi-spherical, hexagonal, triangular or diamond shaped, and wherein the at least one optic feature further causes the peripheral light directed away from the central region of the retina to have a focal point in front of or behind the retina.

2. The ocular lens of claim 1, wherein the at least one optic feature is a printed feature.

3. The ocular lens of claim 1, wherein the at least one optic feature is formed on an anterior surface of the lens body.

4. The ocular lens of claim 1, wherein the at least one ocular lens comprises a composite ocular lens having a plurality of layers, wherein the optic feature is formed on an intermediate layer of the composite ocular lens.

5. The ocular lens of claim 1, wherein the at least one optic feature is located in a region outside of the optic zone.

6. The ocular lens of claim 1, wherein the at least one optic feature has a different refractive index than a material of the lens body in the optic zone.

7. The ocular lens of claim 1, wherein the ocular lens comprises one of a contact lens, a soft contact lens, or a rigid gas permeable contact lens.

8. The ocular lens of claim 1, wherein the ocular lens comprises an implantable lens.

9. The ocular lens of claim 1, wherein the at least one optic feature is configured to direct the peripheral light into a peripheral region of the retina.

10. The ocular lens of claim 1, wherein the at least one optic feature is configured to focus the peripheral light onto a peripheral region of the retina.

11. The ocular lens of claim 1, wherein the at least one optic feature is configured to focus the peripheral light in front of a peripheral region of the retina.

12. The ocular lens of claim 1, wherein the at least one optic feature is configured to focus the peripheral light behind a peripheral region of the retina.

13. The ocular lens of claim 1, wherein the at least one optic feature is free from the central light passing through the optic zone.

14. The ocular lens of claim 1, wherein the at least one optic feature comprises the same refractive index as a material of the lens body.

15. The ocular lens of claim 1, wherein the at least one optic feature is configured to modify an axial growth rate of the eye.

16. The ocular lens of claim 1, wherein the at least one optic feature is configured to control a development of myopia.

17. The ocular lens of claim 1, wherein the at least one optic feature is configured to prevent a development of myopia.

18. The ocular lens of claim 1, wherein the at least one optic feature is one of multiple independent optic features of the ocular lens.

19. The ocular lens of claim 18, wherein at least a subset of the multiple independent optic features are independently tuned to focus light towards different portions of the retina when worn on the eye.

20. The ocular lens of claim 18, wherein at least a subset of the multiple independent optic features are positioned asymmetrically about the ocular lens with respect to a central axis of the ocular lens.

21. The ocular lens of claim 18, wherein at least one of the multiple independent optic features has a different refractive index than another of the multiple independent optic features.

22. The ocular lens of claim 18, wherein at least one of the multiple independent optic features has a different focusing power than another of the multiple independent optic features.

23. The ocular lens of claim 18, wherein at least one of the multiple independent optic features has a different size than another of the multiple independent optic features.

24. The ocular lens of claim 18, wherein at least one of the multiple independent optic features has a different shape than another of the multiple independent optic features.

25. The ocular lens of claim 1, wherein a field of curvature of the ocular lens is unaffected by the at least one optic feature.

26. The ocular lens of claim 1, wherein the at least one optic feature is a lenslet.

27. The ocular lens of claim 24, wherein the lenset is a hexagonal lenslet.

28. The ocular lens of claim 24, wherein the lenset is a semi-spherical lenslet.

29. The ocular lens of claim 1, wherein the at least one optic feature includes a Fresnel type shape.

30. An ocular lens, comprising:

a lens body configured to contact an eye, the lens body including an optic zone shaped to direct central light towards a central focal point of a central region of a retina of the eye when worn on the eye, and

at least one isolated feature of the lens body that directs peripheral light into the eye away from the central region of the retina when worn on the eye, wherein the at least one isolated feature is semi-spherical, hexagonal, triangular, or diamond shaped.

31. The ocular lens of claim 30, wherein the at least one isolated feature is molded into the anterior profile of the lens body.

32. The ocular lens of claim 30, wherein the at least one isolated feature is formed on an anterior surface of the lens body.

33. The ocular lens of claim 30, wherein the at least one isolated feature is formed on an enclosed surface of a layer of multiple layers that form the lens body.

34. The ocular lens of claim 30, wherein the at least one isolated feature is located in a region outside of the optic zone.

35. The ocular lens of claim 30, wherein the at least one isolated feature has a different refractive index than another material of the lens body.

36. The ocular lens of claim 30, wherein the ocular lens comprises one of a contact lens, a soft contact lens, or a rigid gas permeable contact lens.

37. The ocular lens of claim 30, wherein the ocular lens comprises an implantable lens.

38. The ocular lens of claim 30, wherein the at least one isolated feature focuses peripheral light onto a peripheral region of the retina.

39. The ocular lens of claim 30, wherein the at least one isolated feature focuses peripheral light in front of a peripheral region of the retina.

40. The ocular lens of claim 30, wherein the at least one isolated feature focuses peripheral light behind a peripheral region of the retina.

41. The ocular lens of claim 30, wherein the at least one isolated feature comprises a hexagonal shape.

42. The ocular lens of claim 30, wherein the at least one isolated feature comprises a semi spherical shape.

43. The ocular lens of claim 30, wherein the at least one isolated feature comprises the same refractive index as a material of the lens body.

44. The ocular lens of claim 30, wherein the at least one isolated feature comprises a Fresnel prism.

45. The ocular lens of claim 30, wherein the at least one isolated feature is configured to control a development of myopia.

46. The ocular lens of claim 30, wherein the at least one isolated feature is configured to prevent the development of myopia.

47. A method of making an ocular lens, comprising:

forming a spin casting mold with a lens mating surface by molding a profile on a first side of a mold material where the profile contains at least one recess, which forms at least one feature on the ocular lens configured to direct peripheral light into an eye away from the central region of the retina when worn on the eye wherein the at least one feature on the ocular lens is semi-spherical, hexagonal, triangular or diamond shaped;

applying a liquid lens material to the first side of the spin casting mold;

spinning the spin casting mold; and

at least partially curing the liquid lens material to form the at least one feature on the ocular lens.

48. The method of claim 47, wherein the at least one feature is located outside of an optic zone of the ocular lens.

49. The method of claim 47, wherein at least partially curing the liquid lens material includes exposing the liquid lens material to actinic radiation.

50. The method of claim 47, wherein the at least one feature is configured to control an axial growth rate of an eye when worn by a user.

51. The method of claim 50, wherein the step of forming a spin casting mold with a lens mating surface further comprises manufacturing injection mold tooling corresponding to a surface of the ocular lens, including the at least one feature;

wherein the injection mold tooling is manufactured with one of a 3-D nano- printing or a nano-lithography process.

52. The method of claim 50, wherein the at least one feature is configured to focus light in front of a peripheral region of the retina when worn on the eye.

53. The method of claim 50, wherein the at least one feature is configured to focus light behind a peripheral region of the retina when worn on the eye.

54. The method of claim 50, wherein the at least one feature is configured to modify a development of myopia.

55. The method of claim 50, wherein the at least one feature is configured to prevent a development of myopia.

56. A method of making an ocular lens, comprising:

forming an optical feature on at least one surface of the ocular lens;

wherein the ocular lens comprises an optic zone shaped to direct central light towards a central focal point of a central region of a retina when worn on an eye of a user wherein the optical feature is semi-spherical, hexagonal, triangular or diamond shaped; and

wherein the optical feature directs peripheral light into the eye away from the central region of the retina.

57. The method of claim 56, wherein forming the optical feature includes printing an optical material onto the at least one surface of the ocular lens.

58. The method of claim 57, wherein printing the optical material onto the at least one surface of the ocular lens includes using a pad printing process, a plate printing process, a etch printing process, a dot matrix printing process, a laser printing process, a tamp printing process, a liquid jet printing process, or combinations thereof.

59. The method of claim 56, wherein forming the optical feature comprises selectively depositing an optical material on an anterior surface of the ocular lens.

60. The method of claim 56, wherein forming the optical feature comprises selectively depositing an optical material on an internal surface of at least one layer of a plurality of layers forming a lens body.

61. The method of claim 60, wherein the at least one layer is an intermediate layer.

62. The method of claim 61, further comprising:

inserting the intermediate layer between a posterior layer shaped to contact the eye and an anterior layer; and

cross linking the posterior layer and the anterior layer together to form a bonded lens body.

63. The method of claim 56, wherein forming the optical feature comprises:

forming a composite optical lens having at least an anterior layer, and intermediate layer and a posterior layer, including:

molding an intermediate layer including the optical feature; and

bonding the intermediate layer to the anterior layer and the posterior layer.

64. The method of claim 60, wherein the internal surface is on an anterior layer of the lens body.

65. The method of claim 56, wherein the optical material comprises a different refractive index than the optic zone.

66. The method of claim 56, wherein the optical material comprises the same refractive index as the optic zone.

67. The method of claim 56, wherein the optical material comprises a silicone material.

68. The method of claim 56, wherein the optical material comprises a hydrogel material.

69. A spin casting mold for making an ocular lens, comprising:

a profile on a first side of a mold material where the profile is shaped to form an anterior surface of the ocular lens;

at least one recess in the profile shaped to form at least one protrusion on the anterior surface of the ocular lens wherein the at least one recess is semi-spherical, hexagonal, triangular or diamond shaped;

wherein the ocular lens formed by the mold comprises a lens body configured to contact an eye, the lens body including an optic zone formed by the profile that is shaped to direct central light towards a central focal point of a central region of a retina of the eye and the at least one protrusion configured to direct peripheral light into the eye towards a peripheral region of the retina.

70. The spin casting mold of claim 69, wherein the at least one protrusion is configured to focus peripheral light onto the peripheral region of the retina.

71. The spin casting mold of claim 69, wherein the at least one protrusion is configured to focus peripheral light in front of the peripheral region of the retina.

72. The spin casting mold of claim 69, wherein the at least one protrusion is configured to focus peripheral light behind the peripheral region of the retina.

73. The spin casting mold of claim 69, wherein the at least one recess is formed in a region of the profile that corresponds to an area outside of the optic zone.