Claims

1. A multifocal ophthalmic lens wherein:

a first surface of the lens varies across at least a portion of the lens to form a first surface power map;

the first surface power map comprises a spiral, with a power that varies substantially periodically both radially outwards from and angularly about an optical axis of the lens;

a period of the radial variation is greater than 100 microns; and

a period of the angular variation is a unit fraction of 360 degrees.

2. The multifocal ophthalmic lens according to claim 1, wherein:

the ophthalmic lens is a contact lens; and

the first surface varies across an optic zone of the contact lens to form the first surface power map.

3. The multifocal ophthalmic lens according to claim 1, wherein the power varies smoothly across the portion.

4. The multifocal ophthalmic lens according to claim 3, wherein the power varies both radially and angularly as one of: a rounded square wave and a sinusoid.

5. The multifocal ophthalmic lens according to claim 1, wherein the power varies both radially and angularly as a square wave.

6. The multifocal ophthalmic lens according to claim 1, wherein the periods of the radial and angular variations are each substantially constant across the portion.

7. The multifocal ophthalmic lens according to claim 1, wherein the period of at least one of the radial and angular variations changes according to one or both of: a radial distance from the optical axis of the lens and an angular position about the optical axis of the lens.

8. The multifocal ophthalmic lens according to claim 1, wherein:

the lens comprises a central region and an outer region, the central region immediately surrounding the optical axis of the lens and the outer region surrounding the central region;

the power of the central region does not vary periodically across the central region; and

the outer region comprises the angular and radial variations in power.

9. The multifocal ophthalmic lens according to claim 8, wherein the central region has a diameter of less than 50% of that of the portion.

10. The multifocal ophthalmic lens according to claim 8, wherein:

the lens comprises a transition region, the transition region surrounding the central region and the outer region surrounding the transition region; and

the power of the transition region varies to provide a smooth transition between the central and outer regions.

11. The multifocal ophthalmic lens according to claim 1, wherein:

the lens comprises a second surface which varies across the portion of the lens to form a second surface power map;

the second surface power map comprises a spiral, with a power that varies substantially periodically radially outwards from and angularly about the optical axis of the lens;

a period of the radial variation of the second surface power map is greater than 100 microns; and

a period of the angular variation of the second surface power map is a unit fraction of 360 degrees.

12. The multifocal ophthalmic lens according to claim 11, wherein:

the first surface power map and the second surface power map each comprise a spiral; and

the spirals provided by the first and second surface power maps twist in opposing directions.

13. The multifocal ophthalmic lens according to claim 11, wherein the multifocal ophthalmic lens is a myopia control lens.

14. A method of manufacturing a multifocal ophthalmic lens, the method comprising:

operating a lathe to shape a first surface of at least one of: a lens, a mould for a lens, or an insert for manufacturing a mould for a lens, such that:

the first surface varies across at least a portion of the lens to form a first surface power map;

the first surface power map comprises a spiral;

the first surface power map varies substantially periodically both radially outwards from and angularly about an optical axis of the lens;

a period of the radial variation is greater than 100 microns; and

a period of the angular variation is a unit fraction of 360 degrees.

15. The method according to claim 14, further comprising operating a lathe to shape a second surface of the lens, the mould, or the insert, such that:

the second surface varies across the portion of the lens to form a second surface power map;

the second surface power map comprises a spiral;

the second surface power map varies substantially periodically both radially outwards from and angularly about an optical axis of the lens;

a period of the radial variation is greater than 100 microns; and

a period of the angular variation is a unit fraction of 360 degrees.

16. A method of improving vision of a person, the method comprising:

providing a multifocal ophthalmic lens to a person in need of improved vision, wherein

a first surface of the lens varies across at least a portion of the lens to form a first surface power map;

the first surface power map comprises a spiral, with a power that varies substantially periodically both radially outwards from and angularly about an optical axis of the lens;

a period of the radial variation is greater than 100 microns; and

a period of the angular variation is a unit fraction of 360 degrees.