## CLAIMS

1. An optical lens comprising:

a front curve lens and a back curve lens, wherein both said front curve lens and said back curve lens comprise an arcuate shape and are positioned proximate to each other forming a cavity therebetween;

a volume of oil and a volume of saline solution within the cavity; and

a conductive coating on at least one portion of one or both of said front curve lens or said back curve lens contiguous to the cavity;

wherein the optical lens is configured to form variable optical structures from concentric annular sections in the oil and saline solution, based upon an electrical charge applied to the conductive coating in order to change characteristics of the oil and saline.

2. The optical lens of Claim 1, comprising a controller configured to apply the electrical charge to change the variable optical structures using Electrowetting techniques or Electrophoresis techniques.

3. The optical lens of Claim 1 or 2, wherein the variable optical structures provide variable optical powers at discrete steps.

4. The optical lens of any preceding claim, wherein at least a portion of the conductive coating extends from an area interior to the cavity to an area external to the cavity, and wherein the area of conductive coating external to the cavity forms an electrical terminal for providing the electrical charge to the conductive coating.

5. The optical lens of any preceding claim, wherein the lens is configured to form the saline solution and the oil into a series of meniscuses in concentric annular rings and to apply the electrical charge to the conductive coating in order to change the shape of the annular rings.

6. The optical lens of any preceding claim, wherein one or both of the front curve lens and the back curve lens comprises an optical power other than 0.

7. The optical lens of any preceding claim, additionally comprising a channel through one or both of the front curve lens and the back curve lens and a conductive material filling the channel.

8. The optical lens of Claim 7, additionally comprising a terminal in electrical communication with the conductive material in the channel.

9. The optical lens of Claim 8, comprising a controller configured to apply the electrical charge to the terminal to cause a change in the shape of the liquid meniscus diffractive structures.

10. The optical lens of any preceding claim, additionally comprising an insulator coating along at least a portion of the front curve lens, wherein the insulator coating comprises an electrical insulator.

11. The optical defining surface of claim 10, wherein the insulator comprises one or more of Parylene C and Teflon AF.

12. The optical lens of claim 10 or 11, wherein the insulator comprises a boundary area to maintain separation between the conductive coating and the saline solution contained in the cavity between the front curve lens and the back curve lens.

13. The ophthalmic lens of any preceding claim, wherein a functional component that is not transparent is placed within an innermost concentric annular section.

14. The ophthalmic lens of claim 13, wherein the functional component includes a reservoir for a liquid.

CLAIMS

1. An optical lens comprising:

a front curve lens and a back curve lens, wherein both said front curve lens and said back curve lens comprise an arcuate shape and are positioned proximate to each other forming a cavity therebetween;

a volume of oil and a volume of saline solution within the cavity; and

a conductive coating on at least one portion of one or both of said front curve lens or said back curve lens contiguous to the cavity;

wherein the optical lens is configured to form variable optical structures from concentric annular sections in the oil and saline solution, based upon an electrical charge applied to the conductive coating in order to change characteristics of the oil and saline wherein a functional component that is not transparent and which includes a reservoir for a liquid is placed within an innermost concentric annular section.

2. The optical lens of claim 1, comprising a controller configured to apply the electrical charge to change the variable optical structures using Electrowetting techniques or Electrophoresis techniques.

3. The optical lens of claim 1 or claim 2, wherein the variable optical structures provide variable optical powers at discrete steps.

4. The optical lens of any preceding claim, wherein at least a portion of the conductive coating extends from an area interior to the cavity to an area external to the cavity, and wherein the area of conductive coating external to the cavity forms an electrical terminal for providing the electrical charge to the conductive coating.

5. The optical lens of any preceding claim, wherein the lens is configured to form the saline solution and the oil into a series of meniscuses in concentric annular rings and to apply the electrical charge to the conductive coating in order to change the shape of the annular rings.

6. The optical lens of any preceding claim, wherein one or both of the front curve lens and the back curve lens comprises an optical power other than 0.

7. The optical lens of any preceding claim, additionally comprising a channel through one or both of the front curve lens and the back curve lens and a conductive material filling the channel.

8. The optical lens of claim 7, additionally comprising a terminal in electrical communication with the conductive material in the channel.

9. The optical lens of claim 8, comprising a controller configured to apply the electrical charge to the terminal to cause a change in the shape of the liquid meniscus diffractive structures.

10. The optical lens of any preceding claim, additionally comprising an insulator coating along at least a portion of the front curve lens, wherein the insulator coating comprises an electrical insulator.

11. The optical lens of claim 10, wherein the insulator comprises a boundary area to maintain separation between the conductive coating and the saline solution contained in the cavity between the front curve lens and the back curve lens.