CLAIMS

1. An ophthalmic lens device comprising:

a three dimensionally formed ophthalmic insert device; an energization element fixedly attached to the ophthalmic insert device; a thin film transistor comprising an organic semiconductor layer also fixedly attached to the ophthalmic lens device; and a conductive trace providing electrical communication between the energization element and the thin film transistor.

2. The ophthalmic lens device of claim 1, additionally comprising a hydrogel layer encapsulating an ophthalmic lens device.

3. The ophthalmic lens device of claim 2 additionally comprising:

an active optical device capable of changing the optical characteristics of the ophthalmic lens.

4. The ophthalmic lens device of claim 3 wherein:

the active optical device comprises a liquid meniscus lens element.

5. The ophthalmic lens device of claim 4 additionally comprising:

an activation element.

6. The ophthalmic lens device of claim 5 wherein:

the activation element comprises a pressure sensitive switch.

7. The ophthalmic lens device of claim 1 wherein:

the thin film transistor comprises a n-type organic semiconductor layer.

8. The ophthalmic lens device of claim 7 wherein:

the n-type organic semiconductor layer comprises copper hexadecafluorophthalocyanine ($F_{15}CuPc$).

9. The ophthalmic lens device of claim 1 wherein:

the thin film transistor comprises a p-type organic semiconductor layer.

10. The ophthalmic lens device of claim 9 wherein:

the p-type organic semiconductor layer comprises pentacene.

11. The ophthalmic lens device of claim 7 additionally comprising:

a second organic thin film transistor comprising an organic semiconductor layer.

12. The ophthalmic lens device of claim 11 wherein:

the second organic thin film transistor comprises a p-type organic semiconductor layer.

13. The ophthalmic lens device of claim 12 wherein:

the p-type organic semiconductor layer of the second organic thin film transistor comprises pentacene.

14. The ophthalmic lens device of claim 1 wherein:

the first conductive trace comprises a transparent electrode.

15. The ophthalmic lens device of claim 14 wherein:

the transparent electrode comprises indium tin oxide.

16. The ophthalmic lens device of claim 1 wherein:

the energization element is comprised of more than one electrochemical cell which are connected at least in part in a series manner.

17. An ophthalmic lens insert device comprising:

an energization element, at least a first conductive trace and a thin film transistor comprising an organic semiconductor layer.

18. The ophthalmic lens insert device of claim 17 wherein:

the thin film transistor comprises an n-type organic semiconductor layer.

19. The ophthalmic lens insert device of claim 18 wherein:

the n-type organic semiconductor layer comprises copper hexadecafluorophthalocyanine ($F_{15}CuPc$).

20. The ophthalmic lens insert device of claim 1 wherein:

the thin film transistor comprises a p-type organic semiconductor layer.

21. The ophthalmic lens insert device of claim 20 wherein:

the p-type organic semiconductor layer comprises pentacene.

Claims

1. An ophthalmic lens comprising:

a three dimensionally formed ophthalmic insert device;

an energization element fixedly attached to the ophthalmic insert device;

a thin film transistor comprising an organic semiconductor layer also fixedly attached to the ophthalmic insert device; and

a conductive trace providing electrical communication between the energization element and the thin film transistor.

2. The ophthalmic lens of claim 1, additionally comprising a hydrogel layer encapsulating the ophthalmic insert device.

3. The ophthalmic lens of claim 2 additionally comprising: an active optical device capable of changing the optical characteristics of the ophthalmic lens.

4. The ophthalmic lens of claim 3 wherein: the active optical device comprises a liquid meniscus lens element.

5. The ophthalmic lens of claim 4 additionally comprising: an activation element.

6. The ophthalmic lens of claim 5 wherein: the activation element comprises a pressure sensitive switch.

7. The ophthalmic lens of claim 1 wherein: the thin film transistor comprises a n-type organic semiconductor layer.

8. The ophthalmic lens of claim 7 wherein: the n-type organic semiconductor layer comprises copper hexadecafluorophthalocyanine ($F_{15}CuPc$).

9. The ophthalmic lens of claim 1 wherein: the thin film transistor comprises a p-type organic semiconductor layer.

10. The ophthalmic lens of claim 9 wherein: the p-type organic semiconductor layer comprises pentacene.

11. The ophthalmic lens of claim 7 additionally comprising: a second organic thin film transistor comprising an organic semiconductor layer.

12. The ophthalmic lens of claim 11 wherein: the second organic thin film transistor comprises a p-type organic semiconductor layer.

13. The ophthalmic lens of claim 12 wherein: the p-type organic semiconductor layer of the second organic thin film transistor comprises pentacene.

14. The ophthalmic lens of claim 1 wherein: the first conductive trace comprises a transparent electrode.

15. The ophthalmic lens of claim 14 wherein: the transparent electrode comprises indium tin oxide.

16. The ophthalmic lens of claim 1 wherein: the energization element is comprised of more than one electrochemical cell which are connected at least in part in a series manner.

17. A three dimensionally formed ophthalmic insert device comprising: an energization element, at least a first conductive trace and a thin film transistor comprising an organic semiconductor layer fixedly attached to the ophthalmic insert device.

18. The ophthalmic insert device of claim 17 wherein: the thin film transistor comprises an n-type organic semiconductor layer.

19. The ophthalmic insert device of claim 18 wherein: the n-type organic semiconductor layer comprises copper hexadecafluorophthalocyanine ($F_{15}CuPc$).

20. The ophthalmic insert device of claim 17 wherein: the thin film transistor comprises a p-type organic semiconductor layer.

21. The ophthalmic insert device of claim 20 wherein: the p-type organic semiconductor layer comprises pentacene.