CLAIMS

1. A method of forming an ophthalmic device comprising:

attaching a first conductive trace to a thin film transistor;

depositing an organic semiconductor layer fixedly attached the thin film transistor onto an ophthalmic insert device;

forming an encapsulating layer around the ophthalmic lens insert; and

forming an ophthalmic device encapsulating the ophthalmic insert device.

2. The method of claim 1, wherein the encapsulating layer is paralene.

3. The method of claim 2, wherein the encapsulating layer is forming a hydrogel around the lens insert.

4. The method of claim 1, wherein the first conductive trace comprises a transparent electrode.

5. The method of claim 4, wherein the transparent electrode comprises indium tin oxide.

6. The method of claim 1, wherein the thin film transistor comprises an n-type organic semiconductor.

7. The method of claim 1, wherein the thin film transistor comprises a p-type organic semiconductor.

8. The method of claim 1, wherein the thin film transistor comprises an n-type organic semiconductor and a p-type organic semiconductor.

9. The method of claim 6, wherein the n-type organic semiconductor layer comprises copper hexadecafluorophthalocyanine ($F_{15}CuPc$).

10. The method of claim 7, wherein the p-type organic semiconductor layer comprises pentacene.

11. The method of claim 1 additionally comprising:

depositing an energization element upon the ophthalmic insert device in electrical communication with a first gate conductor.

12. The method of claim 11 wherein:

the energization element is an electrochemical cell.

13. The method of claim 12 wherein:

The electrochemical cell is a lithium ion cell.

Claims

1. A method of forming an ophthalmic device comprising:

providing a flat substrate suitable for inclusion within the ophthalmic device;

forming a thin film organic semiconductor device on the flat substrate;

deforming the thin film organic semiconductor device and the flat substrate into a three-dimensionally shaped ophthalmic insert;

forming at least one conductive trace on the three-dimensionally shaped ophthalmic insert;

forming an encapsulating layer around the three-dimensionally shaped ophthalmic insert; and

forming an ophthalmic device encapsulating the three-dimensionally shaped ophthalmic insert.

2. The method of claim 1, wherein the encapsulating layer is parylene.

3. The method of claim 2, wherein the encapsulating layer comprises a hydrogel.

4. The method of claim 1, wherein the conductive trace comprises a transparent electrode.

5. The method of claim 4, wherein the transparent electrode comprises indium tin oxide.

6. The method of claim 1, wherein the thin film organic semiconductor device comprises an n-type organic semiconductor layer.

7. The method of claim 1, wherein the thin film organic semiconductor device comprises a p-type organic semiconductor layer.

8. The method of claim 1, wherein the thin film organic semiconductor device comprises an n-type organic semiconductor layer and a p-type organic semiconductor layer.

9. The method of claim 6, wherein the n-type organic semiconductor layer comprises copper hexadecafluorophthalocyanine ($F_{16}CuPc$).

10. The method of claim 7, wherein the p-type organic semiconductor layer comprises pentacene.

11. The method of claim 1 additionally comprising:

depositing an energization element upon the three-dimensionally shaped ophthalmic insert in electrical communication with a first gate conductor.

12. The method of claim 11, wherein the energization element is an electrochemical cell.

13. The method of claim 12, wherein the electrochemical cell is a lithium ion cell.

14. The method of claim 6, wherein the forming of the thin film organic semiconductor device on the flat substrate comprises:

depositing gate metal features on predetermined areas of the flat substrate;

depositing a dielectric film layer over and around the gate metal features;

depositing organic semiconductor layers onto selective regions; and

forming source and drain electrodes to form the thin film organic semiconductor device on the flat substrate.