CLAIMS

1. An optical delivery device for delivering light to sub-surface regions of the brain or body, the device comprising:
a) an implantable optical transmission element comprising a proximal end and a distal end;
b) a light source for producing light from electrical power, wherein the light source is at the proximal end of the optical transmission element;
wherein the implantable optical transmission element is made from a material that is substantially transparent to the light from the light source, the material having an elongated shape that substantially encases the light source at the proximal end of the optical transmission element, and that is for delivering the light from the light source to the distal end, and wherein the optical transmission element is adapted for rotation about the longitudinal axis and has a distal tip designed to direct light at an angle relative to said axis to change a position of a light stimulus location;
c) a fixation portion physically coupled to the optical transmission element for attachment to the patient; and
d) a heat dissipation portion having a thermally conductive path for removing heat from near the light source.

2. The device of claim 1, wherein the optical transmission element is a lumen and the material is one of glass and plastic.

3. The device of claim 1, wherein the lumen contains a substance having an index of refraction that is substantially the same as the material of the lumen.

4. The device of claim 1, wherein the optical transmission element is rigid along a direction of transmission for the light.

5. The device of claim 4, wherein the optical transmission element includes an outer layer of a second material that facilitates light traveling along the direction of transmission.

6. The device of claim 1, further including a temperature sensor for sensing a temperature near the optical transmission element and a control circuit for controlling the activation of the light source in response to the sensed temperature.

7. The device of claim 1 , wherein the optical transmission element is configured to direct light along a longitudinal axis that extends from the proximal end to the distal and wherein

the optical transmission element is configured and arranged to direct light leaving the transmission element at a non-zero angle relative to the longitudinal axis.

8. The device of claim 1 , wherein the fixation portion is configured and arranged to allow rotational movement, about the longitudinal axis, of the optical transmission element during implantation and to prevent the rotational movement after implantation.

9. The device of claim 1, wherein the material of the optical transmission element is glass that is coated with a reflective substance.

10. The device of claim 1, further including an implantable signal source having a power supply, a control circuit for generating electrical signals that activate the light source and conductors for transmitting the electrical signals to the light source.

11. The device of claim 10, wherein the implantable signal source is designed for placement within the chest cavity in connection with the optical transmission element being implanted within the brain.

12. The device of claim 1, wherein the light source is a light-emitting diode.

13. The device of claim 1, wherein the optical transmission element has a diameter of from about 10 μm to about 1 mm.

14. The device of claim 1, wherein the light source is implantable.

15. The device of claim 1, wherein the heat dissipation portion dissipates heat into the air.

16. The device of claim 1, wherein the heat dissipation portion dissipates the removed heat through the fixation point.

17. The device of claim 1, wherein the fixation portion and the heat dissipation portion are implantable.