Claims

1. A high resolution micro light emitting diode array comprising a plurality of light emitting pixels, wherein at least two of the plurality of light emitting pixels each comprise a light emitting diode device and are separated by a distance of less than or equal to 1 μm by conjugated organic semiconductors dispersed in a medium, wherein the conjugated organic semiconductors absorb light of a predefined wavelength corresponding to the primary peak wavelength of light emitted by at least one of the light emitting pixels.

2. The array according to claim 1, wherein at least one of the plurality of light emitting pixels comprise a light conversion layer arranged to receive input light with a primary peak wavelength and convert the input light to output light with a different primary peak wavelength.

3. The array according to claim 2, wherein the light conversion layer comprises organic semiconductors that convert the input light to output light.

4. The array according to any one of the preceding claims, wherein the conjugated organic semiconductors comprise a plurality of conjugated structures, wherein the plurality of conjugated structures comprise a core and an arm.

5. The array according to claim 4 wherein at least two of the plurality of conjugated structures have a different functional property.

6. The array according to any one of the preceding claims, comprising further organic semiconductors that absorb light of a further predefined wavelength different to the predefined wavelength.

7. The array according to any one of the preceding claims, wherein the organic semiconductors absorb light of a predefined range of wavelengths comprising the predefined wavelength.

8. The array according to any one of the preceding claims, wherein the medium is at least one of a resin and a polymer medium.

9. The array according to any one of the preceding claims, wherein the array is a high resolution micro LED array with a pixel pitch less than 4 μm.

10. The array according to any one of the preceding claims, wherein the plurality of light emitting pixels each have a light emitting surface that is less than or equal to 16 μm^2.

11. A method of forming a high resolution micro light emitting diode array comprising a plurality of light emitting pixels, wherein at least two of the plurality of light emitting pixels each comprise a micro light emitting diode device and are separated by a distance of less than or equal to 1 μm by conjugated organic semiconductors dispersed in a medium, wherein the conjugated organic semiconductors absorb light at a predefined wavelength corresponding to the primary peak wavelength of light emitted by at least one of the plurality of micro light emitting diode devices.

12. The method according to any claim 11, wherein at least one of the plurality of light emitting pixels comprise a light conversion layer arranged to receive input light with a primary peak wavelength and convert the input light to output light with a different primary peak wavelength.

13. The method according to claim 12, wherein the light conversion layer comprises organic semiconductors that convert the input light to output light.

14. The method according to any one of claims 11 to 13, wherein the conjugated organic semiconductors comprise a plurality of conjugated structures, wherein the plurality of conjugated structures comprise a core and an arm.

15. The method according to claim 14, wherein at least two of the plurality of conjugated structures have a different functional property.

16. The method according to any one of claims 11 to 15, wherein the array comprises further organic semiconductors dispersed in the medium, wherein the further organic semiconductors absorb light of a further predefined wavelength different to the predefined wavelength.

17. The method according to any one of claims 11 to 16, wherein the organic semiconductors absorb light of a predefined range of wavelengths comprising the predefined wavelength.

18. The method according to any one of claims 11 to 17, wherein the medium is at least one of a resin and a polymer medium.

19. The method according to any one of claims 11 to 18, wherein the array is a high resolution micro LED array with a pixel pitch less than 4 μm.

20. The method according to any one of claims 11 to 19, wherein the plurality of light emitting pixels each have a light emitting surface that is less than or equal to 16 μm^2.