

Corrugated Nano Structures for Light Extraction of OLEDs

(Development Samples)

N A N O D O T A R R A Y

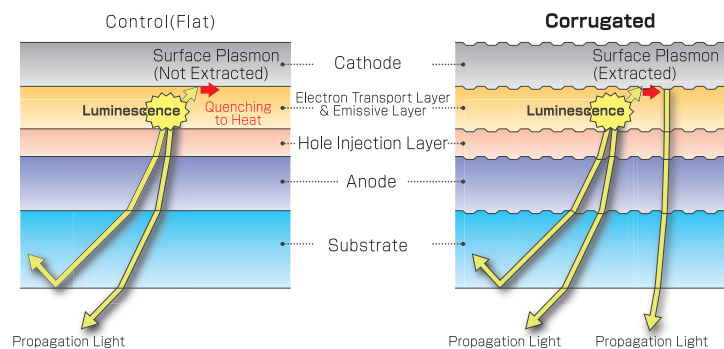
Light extraction efficiency of OLEDs is enhanced by introducing corrugated nano structures into inside of the cell. This is useful for improvement of brightness, reduction of electricity consumption, and elongation of the emission life of OLEDs.

Extraction of Surface Plasmon

Much light energy is trapped inside of OLEDs cell and cannot be extracted outside.

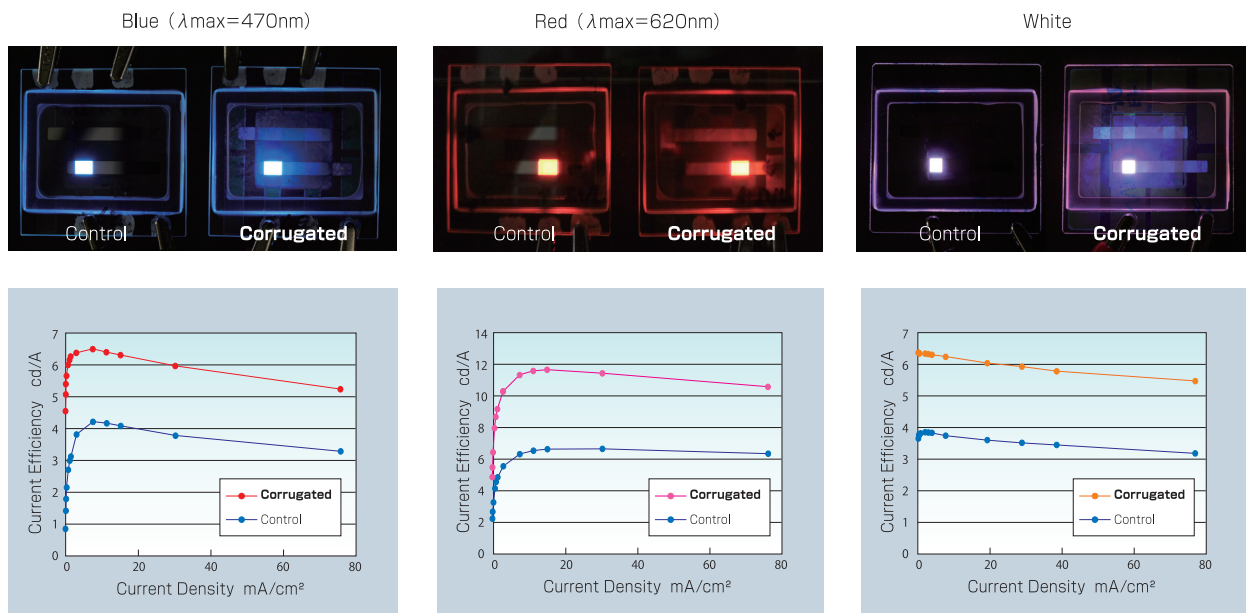
In particular, Surface Plasmon mode which occurs on the surface of cathode is thought to share the largest part of the wasted energy.

Novel corrugated nano structures were developed, which to be located inside of the cell, and transfers the confined energy such as Surface Plasmon mode of Emission mode.



Double Brightness from OLEDs

OLEDs with the extraction structure improved brightness by 2.0 times for monochromatic cells and 1.7 times for white cells compared to the references (Vs control, Bottom emission TEG / Our data.) Further, reduction of driving voltage of OLEDs was confirmed when the nano structure is introduced. The promising technology enables improvement of brightness, reduction of electricity consumption, and elongation of emission life of OLEDs.



[Joint Research with RIKEN]

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https://www.ojiholdings.co.jp/r_d/theme/nano_dot_array.html



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