



Escalating opportunities in the field of lighting

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ABSTRACT

This paper aspires to replicate the current global scenario concerning the prevalent lighting system and elucidates the importance of solid-state lighting (SSL) which has the prospective to stimulate energy saving, energy efficient green technology in the field of lighting. Margins and comprehensive haphazards of currently used lighting systems such as incandescent and fluorescent lamps can be conquered by reinstating the current lighting scheme by green technology called solid state lighting. In addition, the enduring confronts and future perspectives of this cutting edge research with assured measures that can be employed to trim down the driving voltage, curtail the degradation issues and intensify their life time are illustrated. Once we accomplish these challenges, OLEDs can be judged as subsequent substitutes of the existing sources that would volunteer a world of escalating opportunities in the field of lighting.

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Contents

1. Introduction	2
2. Light	3
3. Lighting	3
3.1. Active day lighting	3
3.2. Passive day lighting	3
4. Lighting measurement terminology	3
5. Light pollution	3
6. Light sources	3
6.1. Natural light sources	4
6.2. Artificial light sources	4
7. Evaluation of quality of white light	4
7.1. CIE coordinates	4
7.2. Colour Rendering Index (CRI)	4
7.3. Colour correlated temperature (CCT)	4
8. History of artificial Lighting	4
8.1. Electrically powered incandescent lamps	4
8.1.1. The incandescent lamp	4
8.1.2. Halogen lamp	5
8.2. Electrically powered luminescent lamps	5
8.2.1. Electron-stimulated luminescence lamps	5
8.2.2. High-intensity discharge bulbs	5
8.2.3. Linear fluorescent lamps	7
9. Solid state lighting (SSL)	7
9.1. Requisite of solid state lighting	9
9.1.1. Extensive life time	9

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9.1.2.	Intrinsically secure	9
9.1.3.	Durable and energy savings	9
9.1.4.	Smaller, flexible light fixtures	9
9.1.5.	Recyclable and toxic free	9
9.1.6.	Superior unidirectional light harvesting	9
10.	SSL with LEDs	9
10.1.	Physical function	10
10.2.	LED configurations	10
10.3.	Advantages	10
10.4.	Disadvantages	11
10.5.	Applications	11
11.	Advantages of organic over inorganic	11
12.	Organic Light Emitting Diode (OLED)	11
12.1.	Configuration of OLED	11
12.2.	Specification of different layers	11
12.2.1.	Substrate materials	11
12.2.2.	Anode materials	13
12.2.3.	Hole injection layer (HIL)	13
12.2.4.	Hole transport layer (HTL)	13
12.2.5.	Emissive layer (EML)	13
12.2.6.	Electron transport layer (ETL)	13
12.2.7.	Cathode materials	13
12.3.	Light emitting mechanism	14
12.4.	OLED terminology	14
12.4.1.	Luminance	14
12.4.2.	Quantum efficiency	14
12.4.3.	Driving voltage	14
12.4.4.	Contrast ratio	14
12.4.5.	Life time	14
12.4.6.	Quantum yield	14
12.4.7.	Power efficiency	14
12.4.8.	Encapsulation	14
12.5.	Fabrication techniques	14
12.5.1.	Thermal vacuum evaporation	17
12.5.2.	Spin-coating	17
12.5.3.	Ink-jet printing	17
12.6.	SSL with OLEDs: the future lighting source	17
12.7.	LEDs versus OLEDs: an exhaustive comparison	17
12.7.1.	Contrast ratio	17
12.7.2.	Lighting	17
12.7.3.	Display size	17
12.7.4.	Power consumption	18
12.8.	Advantages	18
12.9.	Key challenges	19
12.9.1.	Lifespan	19
12.9.2.	Degradation	19
12.9.3.	Colour balance	19
12.9.4.	Efficiency of blue OLEDs	19
12.9.5.	Water damage	19
12.9.6.	Economics	19
12.10.	Applications	19
13.	Conclusions	19
	References	20

1. Introduction

OLEDs have been encroaching on the long conventional province of incandescent and fluorescent lighting due to their long life, high intensity, power efficiency, low cost, ease of fabrication, brightness and maximum colour purity [1–3]. Compared to the other major lighting technologies – incandescent, fluorescent, high intensity discharge (HID) lamps, LED, OLED technology has the potential of achieving substantial energy and CO₂ savings, without compromise in colour rendering or switching speed. Hence, the contemporary objective in the field of optoelectronic engineering is to replace these conventional lighting sources with more power

efficient semiconducting light sources, which stems from their ability to reduce ecological trace on our environment in powering these devices [4], lowers the expenditure on energy, self sustainability, and lower fire risk. White light emission can be achieved by stacking red, green and blue (RGB) light emitting materials in between cathode and anode of the device [5]. Up till now various types of materials have been developed and a lot of progress is being made in order to fulfill the requirements of this application. These materials differ from one another by their structure and also by the mechanism involved in the photoluminescence and electroluminescence produced. In spite of the spectacular outcomes achieved, there are still many problems pertaining to the

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