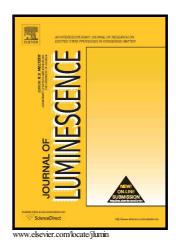
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#### **ACCEPTED MANUSCRIPT**

# Strong microcavity effects in hybrid quantum dot/ blue organic light-emitting diodes using Ag based electrode

Jung Hyuk Im<sup>1</sup>, Kyung-Tae Kang<sup>1</sup>, Jong Sun Choi<sup>2</sup>, Kwan Hyun Cho<sup>1,\*</sup>

<sup>1</sup>Korea Institute of Industrial Technology, 143 Hanggaul-ro, Sangnok-gu, Ansan-si,

Gyeonggi-do, Republic of Korea

<sup>2</sup>Electronic and Electrical Engineering, Hongik University, Seoul, Republic of Korea

\*Corresponding author. Phone: +82-31-8040-6428/ Fax: +82-31-8040-6430/ E-mail: khcho@kitech.re.kr

#### **Abstract**

We investigated the color conversion characteristics of a quantum dot/organic light-emitting diode (QD/OLED) by altering blue emission using the microcavity effect. Compared to the ITO-based OLED, the WO<sub>3</sub>/Ag/WO<sub>3</sub> (WAW)-based OLED has a narrow shape of resonance and high cavity enhancement factor. As a result, the peak emission intensity wavelength remarkably shifts as the thickness of the WO<sub>3</sub> layer increases and the WAW-based OLED with inner WO<sub>3</sub> thickness of 120 nm shows an additional emission peak at 420 nm due to the second resonance. As the thickness of the WO<sub>3</sub> layer increases, the color coordinates of the hybrid QD/OLED with the ITO anode are nearly unchanged. However, hybrid WAW-based devices exhibit distinct color coordinates, such as nearly blue light, nearly green light and nearly white light with color coordinates of (0.31, 0.37).

#### **Keywords**

OLED, quantum dot (QD), microcavity, WO<sub>3</sub>/Ag/WO<sub>3</sub>, color conversion

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