

Erratum: “High efficiency visible electroluminescence from silicon nanocrystals embedded in silicon nitride using a transparent doping layer” [Appl. Phys. Lett. 86, 071909 (2005)]

Kwan Sik Cho,^{a)} Nae-Man Park, Tae-Youb Kim, Kyung-Hyun Kim, Jae-Heon Shin, and Gun Yong Sung^{b)}

IT Convergence and Components Laboratory, Electronics and Telecommunications Research Institute, Daejeon 305-350, Korea

Jung H. Shin

Department of Physics, Korea Advanced Institute of Science and Technology (KAIST), 373-1 Kusung-dong, Yuseong-gu, Daejeon, Korea

(Received 9 April 2006; accepted 22 April 2006; published online 18 May 2006)

[DOI: [10.1063/1.2205754](https://doi.org/10.1063/1.2205754)]

In the original publication titled “High efficiency visible electroluminescence from silicon nanocrystals embedded in silicon nitride using a transparent doping layer,” by Cho *et al.* [Appl. Phys. Lett. 86, 071909 (2005)], we reported on obtaining an external quantum efficiency of 1.6% from light-emitting diodes (LEDs) based on nitride-passivated nanocrystal Si(nc-Si). However, we have recently discovered that there had been a mistake in converting the luminescence spectra into absolute light output values due to usage of an incorrect conversion factor. Therefore, Fig. 3(b) in the original paper should be replaced as below. The correct value, obtained directly using a sensitive optical power meter (Newport 818-SL), is about 0.005%, which is about 300 times less than what had been reported. Thus, while many of the advantages of using nitride passivation such as lower operating voltage and wide tunability in the visible range still remain valid, we can no longer claim that it leads to higher

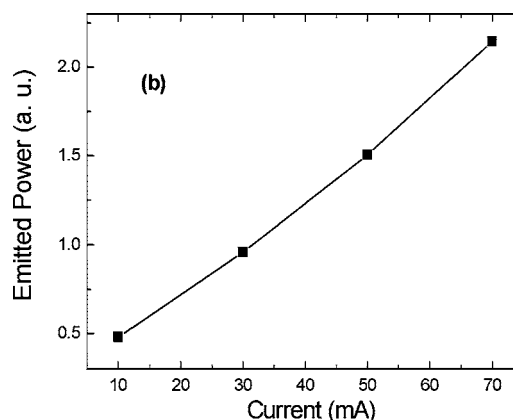


FIG. 3. (b) Emitted EL power vs current passing through the device.

external quantum efficiency of nc-Si based LEDs.

There is a typographical error in the fourth paragraph (lines 6–7) of column 1 on page 071909-2. It should read as “Under these conditions the current density passing through the device is $\sim 12.7 \text{ A/cm}^2$.” The correction does not affect the context of the letter.

^{a)}Department of Physics, Korea Advanced Institute of Science and Technology (KAIST), 373-1 Kusung-dong, Yuseong-gu, Daejeon, Korea.

^{b)}Author to whom correspondence should be addressed; electronic mail: gysung@etri.re.kr