



Enhanced Electroluminescence from a Silicon Nanocrystal/Silicon Carbide Multilayer Light-Emitting Diode

Teng Sun ¹, Dongke Li ^{1,2}, Jiaming Chen ¹, Yuhao Wang ¹, Junnan Han ¹, Ting Zhu ¹, Wei Li ¹, Jun Xu ^{1,*} and Kunji Chen ¹

¹ School of Electrical Science and Engineering, Collaborative Innovation Centre of Advanced Microstructures, Jiangsu Provincial Key Laboratory of Advanced Photonic and Electrical Materials, Nanjing University, Nanjing 210000, China

² ZJU-Hangzhou Global Scientific and Technological Innovation Centre, School of Materials Science and Engineering, Zhejiang University, Hangzhou 311200, China

* Correspondence: author: junxu@nju.edu.cn

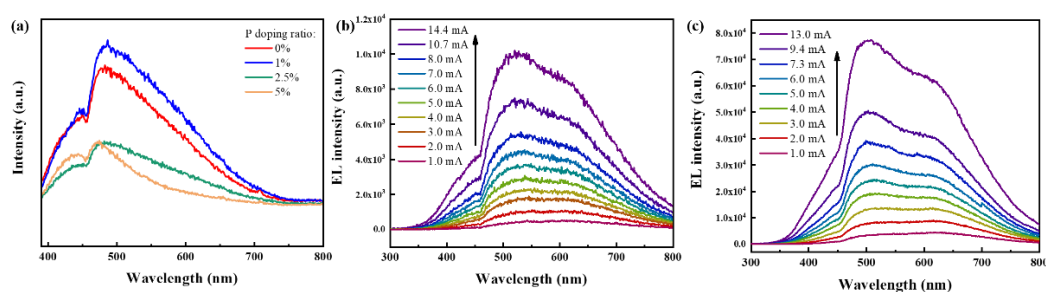


Figure S1. Original detected spectra of (a) PL spectra with various doping ratios, (b) EL spectra of un-doped Si NCs LED and (c) EL spectra of 1% P-doped Si NCs LED.

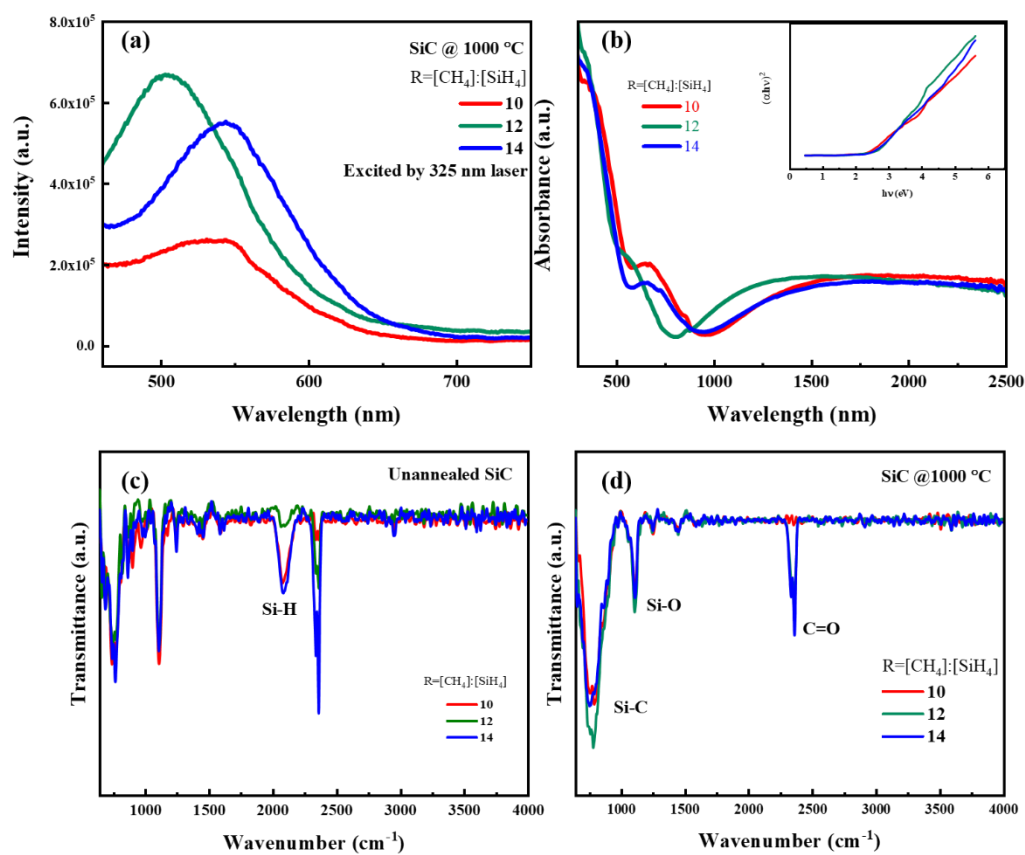


Figure S2. (a) PL spectrum of unannealed SiC (R = 10) excited by 325 nm laser; (b) Absorption spectra of annealed SiC with various R. Inset is the Tauc's plot against photon energy; FTIR spectra of unannealed (c) and annealed (d) SiC with various R.

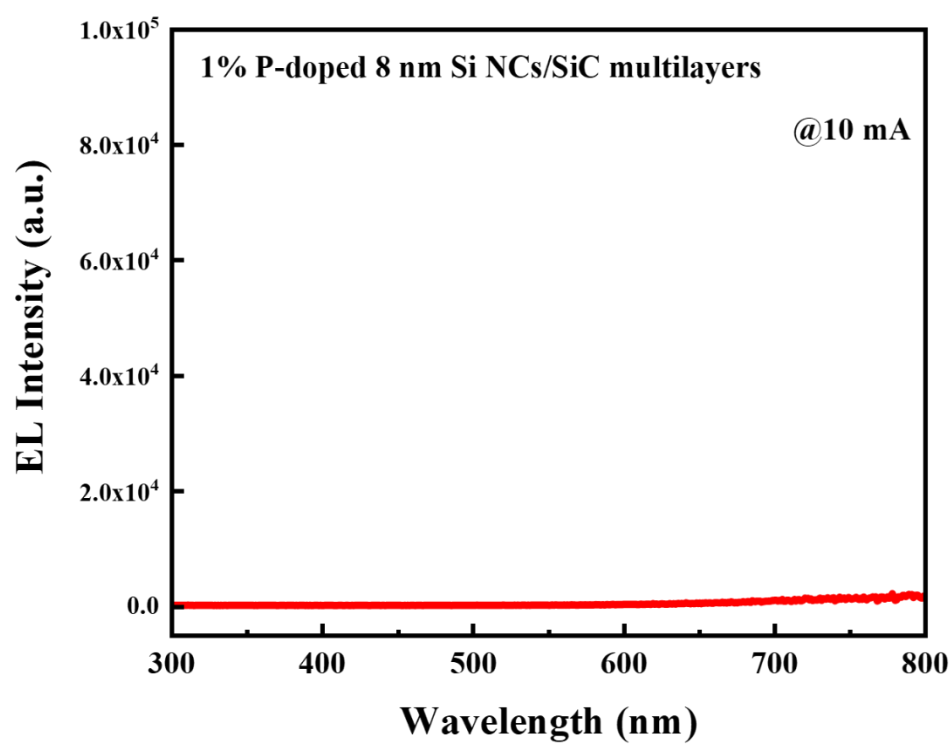


Figure S3. EL spectrum of 1% P-doped 8 nm sized Si NCs/SiC multilayers at 10 mA applied current.