Special Issue

Quantum Dot Light-Emitting Diodes: Innovations and Applications

Message from the Guest Editors

Quantum dot light-emitting diodes (QD-LEDs) are one of the most promising self-luminous displays in terms of luminous efficiency, wavelength tunability and cost. Future applications using QD-LEDs range from wide color gamut and large screen displays to augmented/virtual reality displays, wearable/flexible displays, in-vehicle displays and transparent displays, which require high performance in terms of contrast, viewing angle, response time and power consumption. The theoretical efficiency of a single component is achieved by customizing the QD structure and optimizing the charge balance in the charge transport layer to improve efficiency and lifetime. The maximum external quantum efficiency and lifetime of QD-LEDs have now taken a quantum leap and are increasingly eligible for commercialization. However, many challenges remain for the key factors determining the performance of QD-LEDs, such as the emitter, hole/electron transport layer and device structure. This Special Issue invites contributions describing the latest advances in quantum dot light-emitting diodes. All theoretical, numerical and experimental papers are accepted.

Guest Editors

Dr. Chengzhao Luo

School of Optoelectronic Science and Engineering & Collaborative Innovation Center of Suzhou Nano Science and Technology, Soochow University, Suzhou 215006 China

Dr. Chenghao Bi

College of Physics and Optoelectronic Engineering, Harbin Engineering University, Harbin 150001, China

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Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
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Prof. Dr. Nelson Tansu
School of Electrical and Electronic Engineering (EEE), The University of Adelaide, Adelaide, SA 5005, Australia

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