Special Issue

Micro Fluorescence Detectors/Sensors and Their Applications

Message from the Guest Editors

Fluorescence detection is one of the most sensitive detection methods, which can not only be used to study the physicochemical behavior of molecules, but also widely used in micro and trace analysis in the fields of pharmaceutical industry, environmental monitoring, food safety, etc. With the development of the semiconductor industry, the volume and power consumption of the micro fluorescence detectors/sensors that use light-emitting diode (LED) and laser diodes (LD) as the light source and photodiode (PD) and avalanche diode (APD) as the photodetector have been reduced by more than one order of magnitude compared with desktop fluorescence detectors, and the sensitivity of the micro fluorescence detectors/sensors is still comparable to that of the desktop instruments. Furthermore, micro fluorescence detectors/sensors have been freed from the limitation of size, weight, and power consumption due to the high integration and miniaturization of the instrument, thus playing an important role in the fields of micro total analysis system (lab-on-a-chip), on-site rapid analysis, and in situ analysis in extreme environments.

Guest Editors

Prof. Dr. Xuhui Geng

Dalian Institute of Chemical Physics Chinese Academy of Sciences, Dalian, China

Prof. Dr. Haofeng Hu

China School of Precision Instrument and Opto-electronics Engineering, Tianjin University, Tianjin, China

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Photonics
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
photonics@mdpi.com

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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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