Special Issue

Emerging Frontiers in Photoacoustic Spectroscopy Detection

Message from the Guest Editor

The market of gas sensors has been booming in recent years, especially under the global background of carbon emission reduction. Gas sensors with high sensitivity, high selectivity, fast response, low cost, and a small footprint are desirable across a broad range of applications in environment, energy, safety, and public health. Photoacoustic spectroscopy (PAS) is a promising candidate technique which relies on the detection of acoustic waves generated by periodic local heating and thermal expansion in the vibration–translation (V–T) relaxation process of excited molecules after absorbing photons. PAS signals linearly increase with laser power, rather than a long absorption path. The use of acoustic transducers instead of photodetectors makes PAS sensors more compatible with various laser wavelengths, as sensitive photodetectors are not always available over a wide wavelength range. Therefore, PAS sensors have the unique features of a low cost and compact size.

Guest Editor

Dr. Zhen Wang

The National Institute of Optics, Florence, Italy

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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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Editor-in-Chief

Prof. Dr. Nelson Tansu
School of Electrical and Electronic Engineering (EEE), The University of Adelaide, Adelaide, SA 5005, Australia

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