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2 IRMMW-THz Technologies and Their Applications
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Introduction

The integration of infrared, millimeter wave and terahertz science and technology, has allowed mutual promotion and rapid development. Terahertz science and technology has not been fully explored. Due to its promising applications in spectroscopy, imaging, communications, and nondestructive testing, the tremendous demand has dramatically accelerated the research and development on the smaller terahertz emitter with high-power; the uncooled terahertz detector with high sensitivity; and the portable and robust devices and systems with high speed. In recent years, many reliable new signal sources, detectors, functional devices and systems have continued to emerge. Terahertz technologies already play a crucial role in aerospace, biological medicine, safety inspection, nondestructive testing, cultural relics protection, and next generation wireless communication. At the same time, the research and development of small power terahertz radiation sources, high sensitivity uncooled THz detectors, and portable high speed equipment and systems are still the key bottlenecks in technology. We are glad to see this subject attracting an increasing amount of attention and interest.

Joint effort made by academia and industry promotes terahertz science and technology development. In this regard, "The Infrared, Millimeter Wave and Terahertz Technologies and Their Applications" conference of OIT 2017 was organized. The conference accepted over 39 papers from different countries/areas of the world, which are focused on novel devices, systems and applications of IRMMW-THz science and technology, and other related research disciplines including plasma, metamaterials, testing and calibration, sensors, imaging, and biomedical technology. We also invited renowned scholars to present their cutting-edge work covering fundamental science such as "Wavelength scaling of terahertz wave generation from laser-induced air plasma," and "Application of infrared nondestructive detection on cultural relic protection." These experts and contributors together made a great feast of intellect.

As the committee chairs, we would like to express our appreciation to the committee members for their support, to the presenters for devoting their precious time to write the intriguing articles, and to the reviewers for their helpful comments. We are also grateful to the staff of SPIE for their efforts in publishing the volume of this Proceedings.

Cunlin Zhang
Xi-Cheng Zhang
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