Special Issue

Chip-Scale Photonic Devices for Optical Communication and Information Processing

Message from the Guest Editors

With the rapid development of optical fiber communication, free space communication, microwave photonics, autonomous driving and artificial intelligence technology, the field of high-performance multifunctional photonic devices is receiving great attention from both academia and industry. Photonic devices based on various material systems, such as III–V semiconductors, silicon, silica, lithium niobate on insulators, polymers, etc., are playing important roles in communication and information processing systems. Together with the emerging technologies, record high performance has been demonstrated for chip-scale devices. The modulation bandwidth of lasers, modulators, and detectors has exceeded 100 GHz, the laser linewidth has been reduced to Hz level, and the pulse width of short optical pulses has reached femtoseconds. With the advent and maturing of chip-scale photonic devices, our optical systems will experience a wave of upgrades from the traditional discrete and bulk devices. The purpose of this Special Issue is to highlight the progress in chip-scale photonic devices aiming at high-performance communication and information processing systems.

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