Special Issue

Next-Generation Optical Networks Communication

Message from the Guest Editor

Since the invention of optical fiber in 1966, research and applications of optical fiber communication and networks have never ceased. Optical fiber networks have penetrated every corner of the globe. With the development of technologies, the demand for optical fiber communication and network bandwidth has increased. New principles and technologies continue to emerge, making exploring next-generation optical fiber communication networks necessary. Anti-resonant hollow-core fibers have pushed the limits of transmission loss reduction and entered the deployment phase, serving as a new medium for future ultra-low latency, ultra-large capacity optical transmission. Multi-core fibers interfacing with 800G silicon photonic modules can quadruple capacity without FIFO buffers. Advancements in 1.6T optical modules with co-packaged optics (CPO) reduce power consumption. Large-port optical switches reduced the network power consumption of AI data centers. Research includes fiber and cable technologies, active and passive guided-wave components, integrated optics and optoelectronics, systems and subsystems, networks, and switching. Scenarios combined with AI are also included.

Guest Editor

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