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Application of Adaptive Optics Theory and Technology in Optical Wireless Communication

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Message from the Guest Editor

Optical wireless communication is a new technology that uses a laser as the carrier to transmit audio, video, image and other information. Optical wireless communication takes the atmosphere as the transmission medium. In the transmission process of laser signal, the beam wavefront fluctuates randomly under the influence of atmospheric turbulence, resulting in beam expansion, phase fluctuation, and beam drift, which seriously affects the quality of the received optical signal, and increases the bit error rate and reduces the effectiveness of communication. Adaptive optics is a comprehensive science integrating optics, mechanics and electronics, which can suppress the wavefront distortion of optical signals in atmospheric turbulence transmission. The application of adaptive optics technology to wireless optical communication systems has great potential to suppress the influence of atmospheric turbulence.