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Prof. Hai-Han Lu joined the Department of Electro-Optical Engineering, National Taipei University of Technology as an Associate Professor in 2001, as well was promoted to Professor and Life Distinguished Professor in 2003 and 2017, respectively. His research interests include radio-over-fiber (RoF), fiber-wireless convergence, fiber optical CATV transport systems, hybrid lightwave subcarrier transmission systems, visible/invisible laser light communication (VLLC/IVLLC), and PAM4 lightwave transmission systems. He has authored or co-authored more than 190 papers in SCI cited international journals and more than 120 papers in international conferences. Prof. Lu is currently a Fellow of the SPIE (Society for Optics and Photonics) (2014) and a Fellow of the IET (Institution of Engineers and Technology) (2009).

A 400 Gb/s WDM PAM4 Free-Space Optical Link

Abstract- A 400 Gb/s free-space optical (FSO) link with wavelength-division-multiplexing (WDM) technique and four-level pulse amplitude modulation (PAM4) modulation format is proposed. The free-space transmission rate is significantly increased by WDM technique, and the spectrum efficiency is enhanced by PAM4 modulation format. To our knowledge, it is the first one that adopts WDM technique as well as PAM4 modulation format to demonstrate a 400 Gb/s FSO link. A 16-channel FSO link with a total transmission rate of 400 Gb/s (25 Gb/s/λ × 16 λ = 400 Gb/s) over a 100-m free-space link is successfully demonstrated. Such a 400 Gb/s WDM PAM4 FSO link provides the advantages of optical wireless communications for high transmission rate and long transmission distance, which is thoroughly useful for high-speed and long-haul light-based WiFi (LiFi) applications.