

Title: Specialty Optical Fibers for Optical Orbital Angular Momentum Communications

Abstract

As a newly explored dimension, spatial division multiplexing (SDM) has been demonstrating great potential to tremendously increase the data capacity in optical communication systems. Recently, optical communications SDM channels carried by orbital angular momentum (OAM) modes have gained much attention. In this talk, we will first introduce the basics of OAM and its various applications, including optical communications. Next, we will present several types of ring-core optical fibers for OAM modes, including multi-core ring fiber supporting thousands of OAM modes, coupled ring-core fiber with large negative dispersion, non-zero dispersion-shifted ring fiber to balance the chromatic dispersion and nonlinearity. These ring fiber designs have great potential to increase the spectral efficiency and the overall capacity in fiber-based communications systems.

Biography

Yang Yue received the B.S. and M.S. degrees in electrical engineering and optics from Nankai University, China, in 2004 and 2007, respectively. He received the Ph.D. degree in electrical engineering from the University of Southern California, USA, in 2012. He is a Professor with the Institute of Modern Optics, Nankai University, Tianjin, China. Dr. Yue's current research interests include intelligent photonics, optical communications and networking, optical interconnect, detection, imaging and display technology, integrated photonics, free-space and fiber optics. He has published over 200 peer-reviewed journal papers (including Science) and conference proceedings with >8,000 citations, four edited books, >50 issued or pending patents, >100 invited presentations. Dr. Yue is a Senior Member of the Institute of Electronic and Electrical Engineers (IEEE). He is an Associate Editor for IEEE Access, and an Editor Board Member for three other scientific journals. He also served as Guest Editor for eight journal special issues, Committee Member and Session Chair for >50 international conferences, Reviewer for >60 prestigious journals.

Photograph

