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Biography

Chao Wang received bachelor degree in Optical Information Science and Technology, master degree in Optical Engineering from School of Optical and Electronic Information, Huazhong University of Science and Technology respectively in 2002 and 2005, and Ph.D. degree from Department of Electrical Engineering, the Hong Kong Polytechnic University in 2013. He was employed as a Postdoctoral Fellow/ Research Associate at Hong Kong Polytechnic University from 2014 to 2015. He is currently an associate professor with School of Electrical Engineering, Wuhan University. He has published more than 30 journal and conference papers. His research interests cover mainly optical fiber sensors and devices, gas and liquid detection, condition monitoring in electrical power system.

Presentation Title
Fluid sensors on the tip of suspended-core photonic microcells

The flexible internal structures of suspended-core photonic microcells (PMCs) enable the possibility of building novel optical fiber tip structures for sensor and device applications. The tip-style structures typically possess a sensitive micro-/nano-wire core protected in the fiber jacket tube, while connected to conventional single mode fiber with low-loss transition and to the environment through openings at the fiber tip. Liquid or gas can flow/diffuse into and interactive with the whole core region of the PMC through the openings. As examples, we will report two types of the tip sensors based on the suspended-core PMCs with, respectively, triangular- and rhombus-like core structures, and introduce the optimization and experiments of the tip structures for fluidic refractive index sensing. Compare to some current fiber tip sensors, the tip sensors based on the PMCs exhibit the advantages of compact, high sensitivity, low optical loss, good structural flexibility and resistance to environmental contamination et al, hence would be reliable light-matter interaction platforms for fiber-integrated optofluidic applications. The potentials and the future trends of the PMC-based tip sensors will also be discussed.