

**Title: Photon-phonon interaction: fundamental, material and applications**

**Chairperson:**

Zhaohui Li, Sun Yat-Sen University, China

Lilin Yi, Shanghai Jiao Tong University, China

Ming Li, Institute of Semiconductor, Chinese Academy of Science

Yang Yue, Juniper Networks in USA

**Description:**

Photon-phonon interaction in highly confined nanoscale waveguides or microfiber through guided-wave stimulated Brillouin scattering (SBS) has recently emerged as an important area of research. Compared with the photon-phonon interaction in long optical fiber, the enhanced Brillouin nonlinearities caused by the emergence of large radiation pressure-induced couplings provides a means of nonlinear signal processing with reduced footprint and power consumption, which has important applications ranging from microwave photonics to optical memory. On the other hand, Brillouin nonlinearity is harmful because it is the major factor limiting the power of a fiber device. By special design of waveguide, optical fiber or microfiber, the photon-phonon interaction can also be suppressed or even canceled, which is important for high power fiber laser

design. This workshop will focus on the challenges and recent advances in the field of photon-phonon interactions, including the fundamentals, materials and applications. The topics include nanoscale waveguide and microfiber based photon-phonon interaction enhancement and suppression, new materials based SBS effect, SBS performance improvement and new applications.

**Supposed invited speakers:**

Benjamin Eggleton, University of Sydney, Australia

David Marpung, University of Sydney, Australia

Thomas Schneider, Technische Universität Braunschweig, Germany

Thibaut Sylvestre, Institut FEMTO-ST, Université de Franche-Comté,  
France

Yves Jaouen, Telecom ParisTech, France

Fei Xu, Nanjing University, China

Yunfeng Xiao, Beijing University, China

Duk-Yong Choi, National University of Australia, Australia