

# 潘犀灵教授邀请报告

## Liquid Crystal THz Photonics: an Overview

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报告时间：9月16日（周二）上午10：30

报告地点：唐仲英楼 B501

### Abstract:

In the past decade, THz studies ranging from investigations of ultrafast dynamics in materials to medical, environmental sensing and imaging have been actively explored. For these and future applications in THz communication and surveillance, quasi-optic components such as phase shifters are indispensable. The birefringence of liquid crystal (LC) is well known and extensively utilized for the manipulation of optical radiation in the visible and near-infrared range. Recently, there have been increasing interests in the study of liquid-crystal-based devices for application in the sub-millimeter wave or THz (1 THz = 10<sup>12</sup> Hz) frequency range. In this talk, we review recent advances in liquid crystal THz optics and photonics, focusing on our own work. The basis of liquid crystal optics and THz technology will be covered.

### Introduction of Prof. Pan

**Ci-Ling Pan** is Vice President for Research, Tsing Hua Chair Professor, Department of Physics, National Tsing Hua University (NTHU), Hsinchu, Taiwan. He also holds joint appointment at the Institute of Photonics Technologies of NTHU. Prof. Pan taught at National Chiao Tung University, Taiwan, 1981-2009. He also held visiting professorship at Osaka University and Chinese University of Hong Kong in 2004 and 2008, respectively. In the past decade, the main foci of Prof. Pan's research activities have been Ultrafast and THz Photonics. Recent research highlights include pioneering the field of liquid crystal THz photonics, femtosecond-laser recrystallization and activation of silicon for TFT as well as novel THz generators and detectors. The latter were used in diverse applications such as diagnostics of technologically important materials for photovoltaics, assessing burn trauma and optical-network-compatible W-band (100 GHz or 0.1 THz) wireless communication Link at a data rate beyond 20 Gbit/s. Prof. Pan received numerous awards for his accomplishments. He is a Fellow of APS, IEEE, OSA and SPIE, an Academician of the Asia-Pacific Academy of Materials (APAM). Currently, he also serves as a Traveling Lecturer of OSA and member of Commission C17 (Quantum Electronics) of IUPAP.



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