



University
of Victoria

PHYSICS AND ASTRONOMY COLLOQUIUM (In Person Only)

Dr. Shang-Hua Yang
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“Terahertz optoelectronics and beyond”

Abstract

Terahertz technology has attracted significant interest due to its unique applications in environmental monitoring, space exploration, chemical identification, security screening, medical imaging, and biological sensing. However, the practical deployment of many terahertz systems remains constrained by the relatively low power, low efficiency, and bulky nature of current terahertz sources. In this talk, I will present our recent advancements in developing high-performance terahertz sources that address these challenges. By integrating plasmonic contact electrodes, we have achieved high-performance terahertz optoelectronics, setting new records in optical-to-terahertz conversion efficiencies and attaining power levels of several milliwatts. Additionally, I will discuss our strategies for scalable production, which promise to unlock the immense potential of terahertz technology for non-invasive imaging, industrial inspection, and next-generation wireless communication. At the end, I will share my experiences from the Lindau Nobel Laureate Meetings—an event you certainly won't want to miss!

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