IQSE AMO QO Seminar Series

Tuesday, November 15th, 11:30 am ZOOM & IQSE seminar room (MPHY 578)

Pizza will be served for IQSE members at 11:00 am. The talk will start around 11:30 am

Dr. Tao Peng

(IQSE TAMU)

Towards single photon level imaging at a distance

ABOUT THE SPEAKER: Dr. Tao Peng received his BS and MS degrees in physics from Hunan University, China, and his PhD in physics from the University of Maryland. Following his time as a research assistant at the University of Maryland and a postdoctoral fellow at the IQSE, Texas A&M University, Dr. Tao Peng now holds a post of a research assistant professor at the IQSE, Texas A&M University. His research is focused in quantum optics, laser physics, ghost imaging, quantum eraser, quantum light sensing and spectroscopy. Research by Prof. Tao Peng is published in top-ranking peer-reviewed journals, including Physical Review Letters, Light: Science and Applications, Optics Letters, Scientific Reports, Applied Physics Letters, and others.

EVENT DETAILS: Active optical imaging over long distances has numerous applications. This includes remote sensing, satellite-based topography, and airborne surveillance. The single-photon detection technique has been well-established in applications such as light detection and ranging (LiDAR). However, single-photon LiDAR systems are limited by their weak echo signals and high background noise. Here we present a single-pixel imaging method using the transformer model in deep learning. We show that this method can address these restrictions by realizing 2D imaging with a single-pixel detector without correlation measurement. Together with other techniques, efforts will be made to enable a single-photon LiDAR system to image from a distance with a large FOV and high resolution, as well as a high signal-to-noise ratio, at video rate.

ZOOM information:

https://tamu.zoom.us/j/98156251523?pwd=QVdSdGxtL1UyY0g1L083SU5QR0QrUT09

Meeting ID: 981 5625 1523
Passcode: 297578

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