

# 学术报告会

时间: 2023年5月8日 10:00-11:00

地点: 电院群楼2-410室

## Conveying, displaying and storing information

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摘要:

The talk covers two examples how information is encoded, transmit and displayed or stored. In the first part, we propose novel approaches to encode 2D images with orbital angular momentum of the light, which was conventionally used to encode and decode on-axis 1bit information only. Through theoretical derivation and experimental demonstration, we show the possibility of conveying higher dimensional information and achieving 3D displays with orbital angular momentum. In the second part of the talk, we will introduce an idea of applying holographic data storage to store information in the warm data era, which is the hardest infrastructure challenges facing cloud providers to tackle due to the slowdown of Moore' s Law. Our team developed a technique to read and write data as holograms into crystals. We experimentally demonstrated the highest density of holographic optical data storage achieved to date, along with a quantification of the energy efficiency of such storage and theoretical limits of the storage capacity. These record results, apart from advancing scientific understanding in the field, show a path towards energy-efficient holographic optical storage in the cloud.

简介:

Jiaqi Chu is a Principal Researcher at Microsoft Research Cambridge. She received Ph.D. degree in Electrical Engineering from University of Cambridge in 2018, B.E. degree in Electrical Engineering from Shanghai Jiao Tong University in 2013. From April 2020 to September 2022, she worked as a Senior Researcher at Microsoft Research Cambridge on optical data storage. From April 2018 to April 2020, she worked as a postdoctoral researcher on optical data storage at Microsoft Research Cambridge. Her current research interests include orbital angular momentum of the light, 3D displays, spatial light modulator, optical data storage, holography, and optical computing.