CS Seminar

On Testing and Learning Quantum Junta Channels

Dr. YAO Penghui
Nanjing University

Date:
Nov 24, 2023
Friday
15:30-17:00

Venue:
Room 308
Chow Yei Ching Building
The University of Hong Kong

Abstract:

We consider the problems of testing and learning quantum k-junta channels, which are n-qubit to n-qubit quantum channels acting non-trivially on at most k out of n qubits and leaving the rest of qubits unchanged. We present the algorithms for testing and learning quantum junta channels. This answers an open problem raised by Chen et al. (2023). In order to settle these problems, we develop a Fourier analysis framework over the space of superoperators and prove several fundamental properties, which extends the Fourier analysis over the space of operators introduced in Montanaro and Osborne (2010).

About the Speaker:

Penghui Yao is an associate professor in the Department of Computer Science and Technology, Nanjing University. He obtained his doctoral degree from Centre for Quantum Technology, National University of Singapore. Prior to joining Nanjing Univeristy, He was a postdoctoral researcher at CWI Netherlands; IQC University of Waterloo and QuICS University of Maryland. His research mainly focuses on quantum algorithms, quantum information theory and quantum computational complexity.

All are welcome!
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