OIST OKINAWA INSTITUTE OF SCIENCE AND TECHNOLOGY
沖縄科学技術大学院大学

VISITING PROGRAM

TSVP TALK

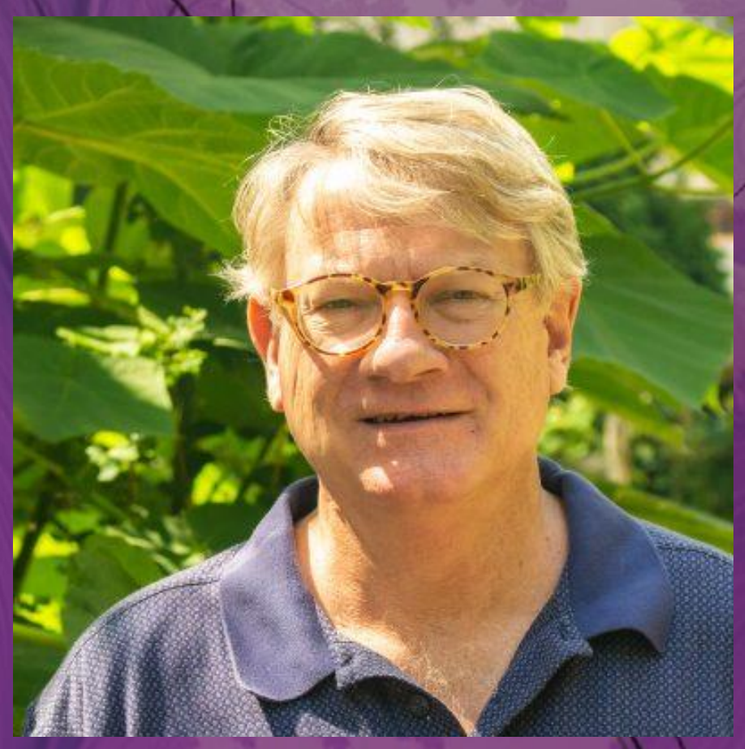
Optimization Using Quantum Computers

2025 THU. **Oct. 30**

15:00–16:00

HYBRID L5D23, ZOOM

For zoom and other details scan QR code or visit oist.jp/visiting-program



Optimization is one of the most important and ubiquitous of all computational tasks. This has become even more true with the advent of AI. Because of the quantum adiabatic theorem, optimization seems like a natural problem for quantum computers. Still, there are obstacles to the creation of really effective quantum optimization. I'll discuss two such obstacles, small gaps and barren plateaus. Making quantum algorithms adaptive may offer a way to overcome both these problems. Gaps may be dealt with by using hybrid quantum-classical methods. The barren plateau issue can be mitigated by controlling the level of entanglement during the course of the computation.

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Robert Joynt received his Ph.D. from the University of Maryland in 1982 and was a postdoctoral fellow at the Cavendish Laboratory of the University of Cambridge and the Institute for Theoretical Physics at ETH-Zurich. He was Professor of Physics at the University of Wisconsin-Madison from 1986 to 2023 and is now Emeritus Professor. He served as Department Chair and was the Founding Director of the MSc in Physics-Quantum Computing. He is Senior Fellow at the Kavli Institute for Theoretical Sciences in Beijing. His research has ranged from the quantum Hall effect to high-Tc superconductivity to neutron stars to quantum computing.

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