Contribution ID : 65 Type : Invited oral

Continuous-variable optimization: quantum vs classical

Thursday, 26 September 2024 09:00 (30)

Performance of quantum annealing for functions with continuous variables has not been well studied. We evaluate quantum annealing on a continuous-variable function with a rugged energy landscape, using domain-wall encoding to map continuous to discrete variables. We assess several algorithms and hardware, including D-Wave 2000Q, TEBD, simulated annealing, and simulated quantum annealing. TEBD's coherent quantum annealing significantly outperforms the others, demonstrating effective coherent tunneling. These results suggest that with reduced thermal noise in the hardware, quantum annealing hardware will surpass classical algorithms.

Primary author(s) : Prof. NISHIMORI, Hidetoshi (Tokyo Institute of Technology)

Presenter(s) : Prof. NISHIMORI, Hidetoshi (Tokyo Institute of Technology)

Session Classification : Session