

The 1st public ExU COLLOQUIUM

October 16th (Wed.) ONLINE

TALK 13:00 - 14:00 (JST)

October 16th (Wed.) 4:00 - 5:00 (UTC)

ONLINE COFFEE TIME

14:00 - 15:00 (JST)

Registration required (click [HERE](#))



Speaker

Prof. Koji Terashi

The University of Tokyo

Extreme Universe, JAPAN



MEXT -KAKENHI- Grant-in-Aid for Transformative Research Areas (A)
The Natural Laws of Extreme Universe

Quantum Algorithm and Qubit Technology Applications for Particle Physics

Abstract

Quantum computing may offer an intriguing path for paradigm changes in computational science. Among potential quantum computing applications, simulation of quantum many-body phenomena and learning of quantum states/processes are often considered to be the place where we expect to have quantum advantage over classical counterparts in terms of computational resource. In this talk, I will present our recent studies of quantum algorithms and the applications to particle physics in the context of quantum simulation and quantum machine learning. While the qubit technology is the foundation of quantum computing, it will provide a means of probing the environment as a quantum sensing device. I will highlight our recent activities of utilizing superconducting qubits to search for dark matter in the Universe, and the initial findings from an experimental run.

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