

Unraveling the Particle World and the Cosmos at Berkeley—Workshop in Honor of Lawrence Hall and Hitoshi Murayama



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Dark matter detection using superconducting qubits

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Detection of wave-like dark matter using superconducting qubits is proposed. Due to their capacitive coupling with external electric fields, superconducting qubits are well-suited for detecting dark matter candidates such as hidden photons or axions, which induce effective electric fields. I will discuss the expected sensitivity in the search of these dark matter candidates using superconducting qubits as quantum sensors. I will also explore a possibility to enhance the signal rate with the help of the quantum coherence in qubits.

Presenter: MOROI, Takeo (U. Tokyo)