

Ionizing Radiation and Superconducting Qubits (25+5)

Tuesday, January 14, 2025 4:20 PM (30 minutes)

Ionizing radiation has been shown to reduce the performance of superconducting quantum circuits. In this talk, I will first provide an overview of this rapidly evolving area of research, up to the implications of the latest demonstration of quantum error correction gains by Google. I will provide an overview of some of our recent work that identifies potentially problematic sources of radiation in a typical superconducting quantum computing system. I will conclude with our estimates for potential performance gains for devices operating in PNNL's new Low Background Cryogenic Facility operating in the 30 m.w.e Shallow Underground Laboratory.

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