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SRF technology for Quantum Computing and Dark Matter Searches

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Quantum information science is no longer a field of uniquely theoretical endeavors. Current state-of-the-art quantum hardware is capable of processing shallow algorithms and nearly reaches the domain where classical computing will struggle. In addition to the increase in performance, the last decade has shown a broadening of applications well beyond the typical mantra of the programmable quantum processor. A telling example is the use of quantum states for the detection of particles and Dark Matter searches. Despite the advancements of the last decade, there is still ample room for new experiments and a pressing need for improvements. Adopting elements from Superconducting Radiofrequency technologies will help to push the frontier of this field. In this talk I will introduce the concepts of Quantum Information science and discuss why the field would benefit from SRF technologies and how the combination of SRF technologies and Quantum Information science leads to new enabling technologies for example for Dark Matter searches.

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