



## ULTRA COLD DETECTORS TO STUDY THE HOTTEST PARTS OF THE UNIVERSE

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Superconducting electronics has gotten a lot of hype lately over promises of quantum computing and cryptography. However, an equally compelling but less discussed use of superconducting electronics is for the study of particle physics and cosmology. I will provide an overview of superconducting detectors and describe a number of important technologies under development at JPL and other institutions, including transition edge sensor bolometers, kinetic inductance detectors, quantum capacitance detectors, superconducting nanowires, and parametric amplifiers. I'll illustrate how these technologies are moving the field forward in key ways by highlighting their use for Cosmic Microwave Background measurements, intensity mapping, VLBI, and deep space optical communications.