

Abstract Submitted
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Niobium Hot Electron Bolometer Development for Terahertz Detection¹ MATTHEW REESE, Yale Univ., DANIEL SANTAVICCA, Yale Univ., LUIGI FRUNZIO, Yale Univ., DANIEL PROBER, Yale Univ. — We have developed both diffusion and phonon cooled Hot Electron Bolometers (HEBs) for detecting weak signals in the submillimeter or terahertz range. The device consists of a superconducting microbridge between two non-superconducting reservoirs. We use niobium as our superconductor and aluminum as our normal metal. The goal of the research is to produce very fast (100 MHz) direct detectors for spectroscopic use, and high bandwidth mixers. We will report the performance as both heterodyne and direct detectors. The microscopic properties of the devices, including the effects of the superconducting proximity effect have also been studied.

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