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THz antenna-coupled nanoscale electron-phonon bolometers CHRISTOPHER MCKENNEY, ANDREW CLELAND, University of California at Santa Barbara — We are fabricating nanoscale bolometers for use in THz radiation detection. A sufficiently small volume of normal metal volume is so decoupled from phonons at mK temperatures that thermal time constants can reach milliseconds. We sense the temperature change in the electron gas due to THz radiation absorption using a pair of superconductor-insulator-normal metal (SIN) tunnel junctions, probed using a radiofrequency tank circuit to achieve large measurement bandwidth. THz radiation is coupled to the normal metal with an impedance-matched double slotline antenna; we use a blackbody source to generate photons at ~ 1 THz. We report our progress on the development of these devices.

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