Abstracts

Monolithic Silicon Bolometers as Sensitive mm-Wave Detectors

J.-W. Zhou, K. Farooqui, P.T. Timbie, G.W. Wilson, C.A. Allen, S.H. Moseley and D.B. Mott. "Monolithic Silicon Bolometers as Sensitive mm-Wave Detectors." 1995 MTT-S International Microwave Symposium Digest 95.3 (1995 Vol. III [MWSYM]): 1347-1350.

We report the development of a waveguide-coupled monolithic Si bolometer for applications in low-background millimeter-wave astrophysical observations. In this device, the absorber of the bolometer is a narrow Bi-coated Si substrate oriented along the E-plane of the waveguide. This design allows efficient coupling of bolometers to waveguide. We measured these devices to have a high coupling efficiency, an electrical responsivity /about equal/ 2 x 10/sup 9/ V/W, and electrical noise equivalent power (NEP) /about equal/ 10/sup -17/ W/radical Hz at -100 mK.

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