

## Demonstration of a 630-GHz photomixer used as a local oscillator

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*E.K. Duerr, K.A. McIntosh, S.M. Duffy, S.D. Calawa, S. Verghese, C.-Y.E. Tong, R. Kimberk and R. Blundell. "Demonstration of a 630-GHz photomixer used as a local oscillator." 1999 MTT-S International Microwave Symposium Digest 99.1 (1999 Vol. I [MWSYM]): 127-130 vol. 1.*

We report the first successful demonstration of a photomixer local oscillator (LO) integrated with a superconducting heterodyne detector. The photomixer LO generated the difference frequency of two diode lasers by optical heterodyne conversion in low temperature-grown GaAs. The measured receiver noise temperature, 331 K at 630 GHz, compares favorably with that achieved using a varactor multiplier LO. We also report the design of a high power distributed photomixer structure.

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