Abstracts

60 GHz Sources Using Optically Driven HBTs

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Millimeter wave sources at 60 GHz have been demonstrated using optically driven heterojunction bipolar transistors configured as photodetectors. Two techniques were used to optically generate the millimeter waves; the mixing of two cw lasers and the mode locking of a semiconductor laser. The millimeter wave power generated from these two configurations was radiated into free-space using integrated planar twin dipole antennas and heterodyne detected with signal to noise ratios > 40 dB. As part of these experiments, the DC optical gain and quantum efficiency of the HBT photodetectors was determined.

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