Abstracts

Optically Controlled Spatial Modulation of (Sub-)Millimeter Waves Using nipi-Doped Semiconductors

G. Delgado, J. Johansson, A. Larsson and T. Andersson. "Optically Controlled Spatial Modulation of
(Sub-)Millimeter Waves Using nipi-Doped Semiconductors." 1995 Microwave and Guided Wave Letters 5.6 (Jun. 1995 [MGWL]): 198-200.

The use of a molecular beam epitaxy engineered semiconductor structure to quasioptically modulate a millimeter wave Gaussian beam using an optical control signal has been demonstrated. The RF transmission is modulated spatially by the optically generated excess carrier density. Low optical intensities are sufficient due to the long recombination lifetime achieved in the nipi-doped structure used. A modulation depth of more than 15 dB in transmission mode has been obtained at 100 GHz. Modulation has been measured up to 5 THz using a Fourier transform spectrometer.

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