Abstracts

Characterization of ultrafast devices using near-field optical heterodyning

M.E. Ali, K. Geary, H.R. Fetterman, S.K. Han and K.Y. Kang. "Characterization of ultrafast devices using near-field optical heterodyning." 2002 Microwave and Wireless Components Letters 12.10 (Oct. 2002 [MWCL]): 369-371.

We demonstrate a novel technique for highly localized injection of millimeter waves in ultrafast devices that combines optical heterodyning and near-field optics. The technique relies on evanescent coupling of two interfering lasers to a submicron area of a device by means of a near-field fiber optic probe. Scanning measurements show the dc and ac photoresponses of two ultrafast device structures, namely low-temperature GaAs photoconductive switches and InP-based high electron mobility transistors. The response characteristics were rich in structures that revealed important details of device dynamics.

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