Abstracts

Terahertz sources and detectors using two-dimensional electronic fluid in high electron-mobility transistors

M.S. Shur and Jian-Qiang Lu. "Terahertz sources and detectors using two-dimensional electronic fluid in high electron-mobility transistors." 2000 Transactions on Microwave Theory and Techniques 48.4 (Apr. 2000, Part II [T-MTT] (Special Issue on Terahertz Electronics)): 750-756.

In this paper, we discuss our recent theoretical and experimental results dealing with plasma waves in high electron-mobility transistors (HEMT's) and their applications for sources and detectors operating in millimeter and submillimeter range. Plasma waves in short-channel HEMT's have a resonant response. The HEMT-based source or detector utilizing plasma waves should operate at much higher frequencies than conventional transit-time limited devices since the plasma waves propagate much faster than electrons.

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